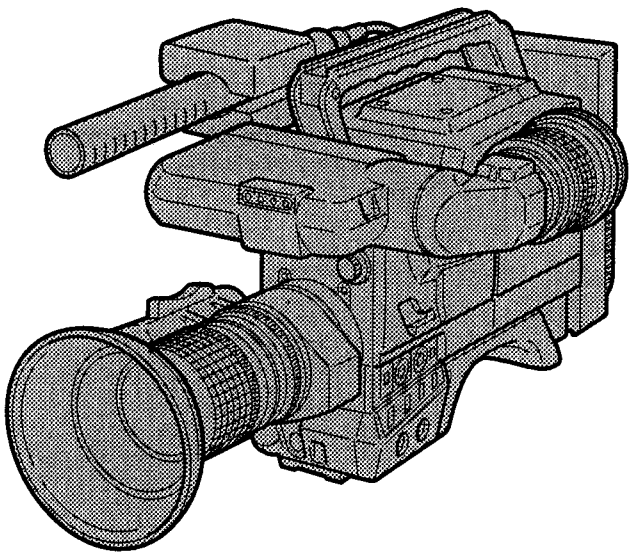
JVC

INTRODUCTION
CONTROLS, CONNECTORS AND INDICATORS
BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS
SHOOTING (BASIC OPERATIONS)
SHOOTING (APPLIED OPERATIONS)
SYSTEM UPGRADING
OTHERS

COLOR VIDEO CAMERA

KY-D29 INSTRUCTIONS



Illust shows the KY-D29 video camera with an optional camera adapter (KA-27), viewfinder, and lens.

For Customer Use:
Enter below the Serial No. which is located on the body.
Retain this information for future reference.

Model No. KY-D29

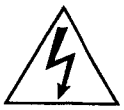
Serial No.

SC96757

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OUT A LA PLUIE.

POWER SYSTEM

This color video camera should be used with 12 V DC only.

CAUTION:

To prevent electric shocks and fire hazards, do NOT use other than specified power source.

Système d'alimentation

Cette caméra vidéo couleur ne doit étre utilisée que sur tension continue de 12 V.

Attention:

Pour éviter tout risque d'incendie ou d'électrocution, n'utilisez aucune autre source d'alimentation.

Information for USA

This device complies with Part 15 of the FCC Rules. Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

INFORMATION (FOR CANNADA)
RENSEIGNEMENT (POUR CANADA)

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numénque de la class B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

Thank you for purchasing the JVC KY-D29.

We do not assume liabilities for a loss of the recording contents in the case of a recording failure due to a function in the color video camera, video tape recorder or video cassette tape in use.

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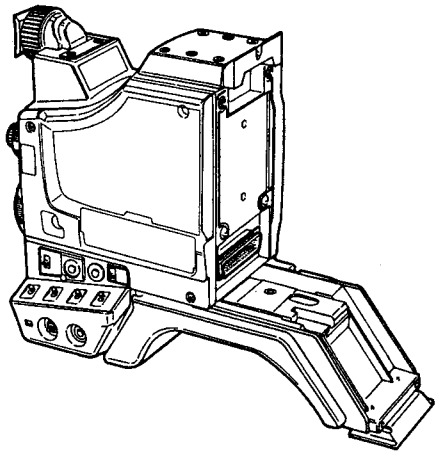
GENERAL FEATURES

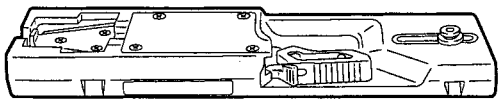
- Newly-developed, 380,000(NTSC), 430,000(PAL) pixel CCDs Achieve a high sensitivity of F/11 at 2000 lux, a high resolution of 850 lines and greatly improved smear characteristic.
- The digital processing camera incorporating the newly-developed DSP assures a dynamic range of 600%. The camera head also incorporates a DNR circuit which provides a nominal S/N of 62 dB as well as a high 65 dB S/N in operation.
- A Super LOLUX circuit for a minimum practical illumination of 0.35 lux.
- A vertical resolution improvement circuit.
- ALC (Automatic Level Control), FAS (Full Auto Shooting), FAW (Full-time Auto White balance adjustment) and EEI (Electronic iris) circuits.
- Black stretch and black compression circuits.
- An ACCU-FOCUS circuit for accurate focusing.
- A smooth transition circuit eliminating suddly change during sensitivity and white balance switching.
- A time/date generator.
- A newly-developed viewfinder (optional) featuring improved performance including the easy-to-see screen and large eyecup.
- Other features
  - A SMPTE (NTSC), EBU (PAL) type color bars generator.
  - The Same interface as previous models allowing the connection of the existing BR-S422, etc.
  - Common peripheral components as the KY-27 series cameras.
  - Optical filter with built-in cross effect.
  - Audio control potentiometer.
  - Easy-to-use set-up menus.

1. INTRODUCTION

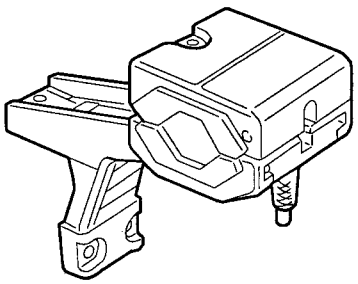
STANDARD CONFIGURATION



Color video camera



Tripod base



Microphone holder

COMPOSITION OF THIS MANUAL

This manual is composed of the sections described in the following.

SECTION 1 INTRODUCTION

This section describes a list of accessories provided with this product, its main features and the precautions to be taken for the correct use of the product. Please be sure to read this section first.

SECTION 2 CONTROLS, CONNECTORS AND INDICATORS

This section describes the names of the parts and their functions of the camera head and the minimum required components for shooting which includes the camera adapter (KA-27), lens and viewfinder (VF-P116).

It also contains a description of the warning indicators inside the viewfinder and its screen display.

SECTION 3 BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

This section describes how to install the basic system, how to prepare the power supply and how to perform any adjustments which are required before shooting.

You will be ready for shooting after reading this section.

SECTION 4 SHOOTING (BASIC OPERATIONS)

This section focuses on the basic shooting operations and the white balance adjustment which is a "must" to be learned before shooting, so that even a beginner can start shooting immediately after reading this section.

SECTION 5 SHOOTING (APPLIED OPERATIONS)

This section describes the switch setup according to individual shooting conditions.

It also covers the method for obtaining a variety of special effects by selecting items from the menus displayed on the viewfinder screen.

SECTION 6 SYSTEM UPGRADING

This section describes the methods for connecting the camera to other systems such as a switcher or remote control unit. The methods for connection of the accessories required for system upgrading and other peripheral components are also described in this section.

SECTION 7 OTHERS

This section includes the measures to be taken in case of trouble with the operation of the camera.

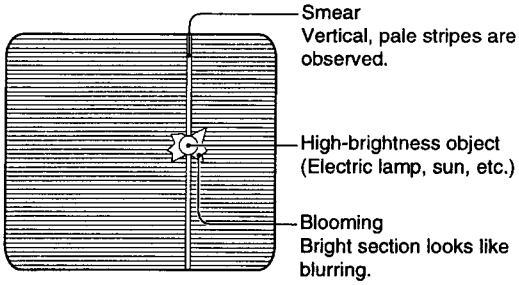
It also includes the specifications of the camera.

PRECAUTIONS HANDLING PRECAUTIONS

•Supply Voltage
Make sure that the power is between 10.5V and 15.0V DC. If the power voltage is too low, abnormal color and increased noise may occur.
Do not exceed 15.0V DC in any case, or the unit could be damaged.

•Precautions before carrying the camera
Be careful not to subject the camera to a strong impact or to drop it. Be sure to hold the camera by the carrying handle. Do not hold the lens or the viewfinder section as this may cause damage to these parts.

•Specific phenomena to CCD
Smear and blooming
When a CCD picks up the image of a light source with a high brightness, white stripes may be observed vertically above or below the light source (smear) or the light may seem to blur around the light source in the case when this is extremely bright (blooming).
This camera uses CCDs which provide extremely reduced smear and blooming features, but care against these phenomena is still required when shooting a very bright light source.



Monitor screen

•Fold-back distortion
A stripe pattern or line may look as if it is zigzagging.
White spot
White spots may be observed on the screen when the CCDs are used under high temperatures.

•To conserve power, switch the power off when the camera is not in use.

•Ambient temperatures
Please observe the operating temperature range (–5°C to +45°C) specified in "Specifications" on page 53. Be careful not to operate the camera at above the operating temperature range, for this may result in malfunction and affect the CCDs seriously, causing a phenomenon in which white spots are observed on the screen.

•Influence of strong radio and magnetic waves when the camera is used near a radio or television transmission antenna or in a place subject to strong magnetism from a transformer, motor, etc., the camera may be interfered with and noise occur or the colors may be altered.

•Use of a wireless microphone near the camera
Be careful when using a wireless microphone and receiver near the camera during shooting, for this may cause the noise from the camera to interfere with the wireless microphone receiver.

•430 MHz band interference noise may occur when using a condenser microphone.

•Caution on interference to the reception of radio and television receivers.
When the camera is used in a general household situation, it may cause interference in the reception of the radio and television receivers in the home . Be sure to use the camera at a suitable distance from these kinds of equipment.

• Battery backup
The date, time and accumulated recording time data is backed up by the lithium battery in the camera head. When the data is no longer able to be backed up, it may mean that the lithium battery has to be replaced : please consult your local JVC-authorized service dealer.

• Accumulated recording time display
The accumulative recording time of this unit should be used strictly as a guide.

• Setup level
The video signal of this camera is factory-set with a setup level. If you want to delete the setup, please consult your local JVC-authorized service dealer.

• Connection of other equipment
Be sure to turn the power switches of this unit and the connected equipment to OFF before connecting them.
If they are interconnected while the power switches are in the ON positions, it would not be possible to turn power ON normally later.

• Connection of remote control unit
When connected with the remote control unit, the iris of the lens is forcefully controlled from the remote control unit, disabling the manual control of the iris.
If you want to control the lens iris manually or to use a lens remote control unit, the internal switch position has to be changed. Consult with your local JVC authorized service dealer when this occurs.

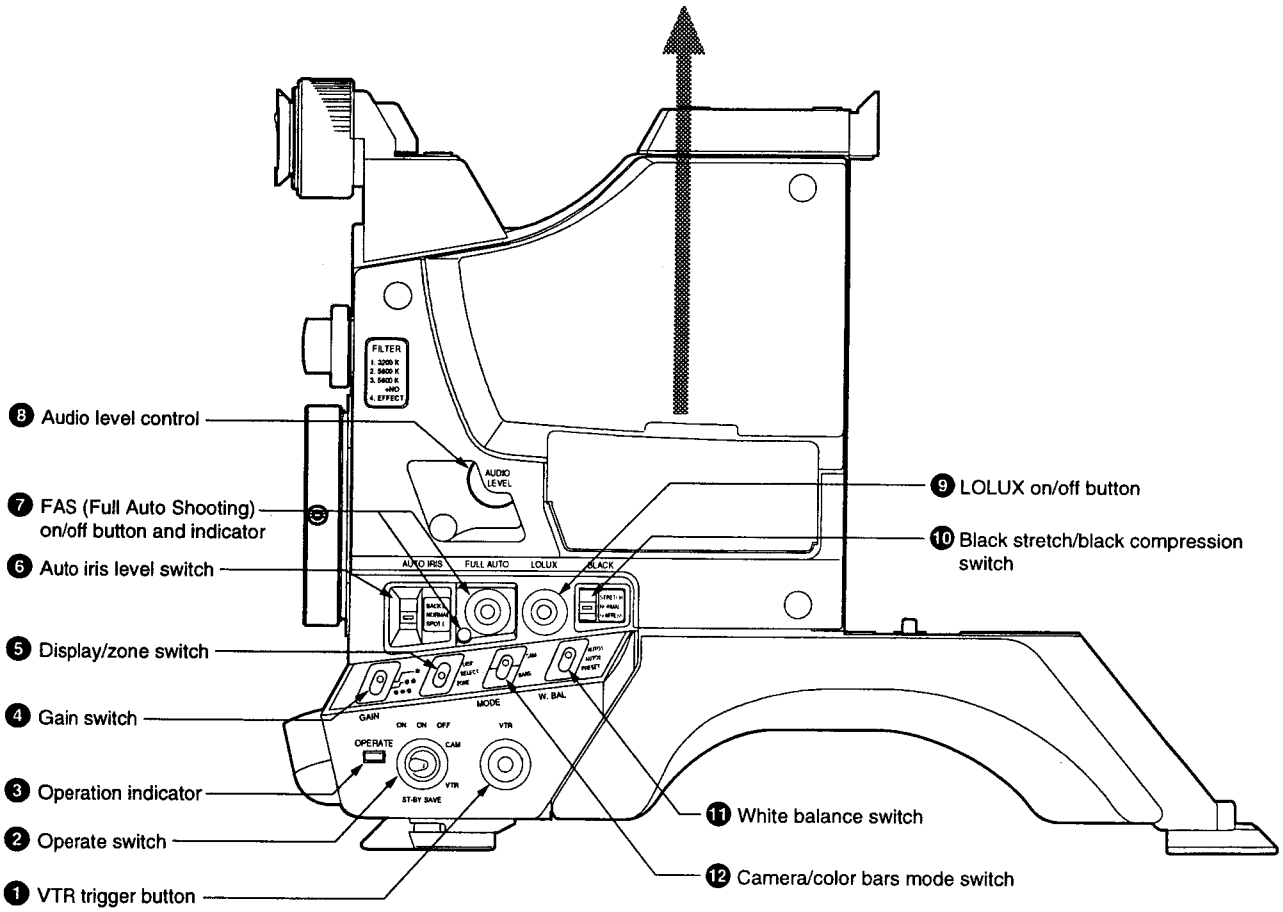
• The camera may be unstable in the period immediately after the power is turned on, but this is not a malfunction.

2. CONTROLS, CONNECTORS AND INDICATORS

2-1 CAMERA HEAD (KY-D29)

[Right side panel]

Reference Page 8. (Setup/Mode Setting Selection)



❶ **[VTR] VTR trigger button(Recording Start/Stop)**

This momentary button initiate or end recording if the VCR is in the record pause mode.
The lens is interlocked with the VTR trigger button on the front panel.

❷ **[OPERATE] Operate switch**

The camera can be turned ON/OFF and the VCR can be switched to ON/ST-BY, ON/SAVE, OFF/SAVE by this switch.
Reference Page 28.

CAUTION :

Quick operation of ON and OFF for the OPERATE switch or POWER switch may cause malfunctions such as the power cannot be started, etc.
In such a case, turn the POWER switch OFF and leave it for several seconds (5 sec. or more) then turn the power ON.

❸ **Operate indicator**

Bright : In ON/ST-BY and ON/SAVE position.
Dim : In OFF/SAVE position.
Off : KA-27 power switch is OFF or power to unit is exhausted or not connected.

❹ **[GAIN] Gain switch**

When the illumination of the object is insufficient, set this switch to boost the gain electrically.
Reference Page 36, 42.

2-1 CAMERA HEAD (KY-D29) (Cont'd)

❺ [DISP SELECT/ZONE] Display / zone switch

This switch selects the function for displaying the camera switch and other setups on the viewfinder screen.

- Whether or not the display should be output to the monitor can be selected with the [DISP MIX] switch ㉟.

• [DISP SELECT] Status display select

Three information display modes are cycled between by pushing this switch repeatedly in the up DISP.SELECT position.

Status 0 : The camera setting conditions such as ACCU. FOCUS and LOLUX are displayed.

Status 1 : Besides Status 0, accumulated or remaining record time, battery and input DC voltage, VTR status, iris level and audio levels are displayed.

Status 2 : The present camera conditions including scene file name white balance mode, filter position, shutter speed, gain, iris level, iris detect mode, full auto shoot on/off, digital noise reduction mode, accum or remain record time are displayed.

Reference page 16.

• [ZONE] Safety zone select

Three overscan safety zone modes are cycled between by pushing this switch repeatedly down in the ZONE position.

Mode 0 : Video only.
Mode 1 : Safety outline.
Mode 2 : Center markings and safety outline.

❻ [AUTO IRIS] Auto iris level switch

This switch selects the automatic iris adjustment reference value according to the condition in which the camera is used.

BACK. L : Under back light (Open the iris about 1 step from the standard level.)
NORMAL : Normal condition
SPOT. L : Under spotlight (Close the iris about 1 step from the standard level.)

Reference Page 37.

❼ [FULL AUTO] Full auto shooting ON/OFF button and indicator

- This momentary switch turns this function on and off, with a green indicator light.
- Full auto shooting combines the auto iris, auto level control and full auto white (FAW) to automatically adjust the video signal level and the white balance to their optimum levels.
- The iris is placed in automatic even if the iris mode switch of the lens is in manual.
- The gain will vary continuously to the maximum of +18dB. The shutter speed will vary continuously to the minimum of 1/250 of a second.

Reference [Full Auto Shooting (FAS) function] on page 37.

❽ [AUDIO LEVEL] Audio level control

Rotate this knob to vary the level of the audio signal input into the microphone input connector.
Adjust to the optimum audio level for the recording by watching the audio level display on the viewfinder.

Reference "Viewfinder display" on page 15.

❾ [LOLUX] LOLUX on/off button

This button toggles the LOLUX mode on and off.

- LOLUX gain gives extremely low light level sensitivity for special applications. This will result in an increase of 33 dB in the LOLUX and 39 dB in the SUPER LOLUX modes.
- LOLUX operation takes priority over normal gain operation. If the unit is placed in the LOLUX mode when it is in full auto shooting mode, the auto level control (ALC) (one of the full auto shooting functions) will be made inactive, so that the LOLUX mode is given preference (FAW still remains active).

Reference [LOLUX GAIN UP] on page 36.
Reference [ADVANCED MENU] on page 42.

❿ [BLACK] Black stretch/black compression switch

This switch control the black gain.

BLACK STRETCH : Boosts the black gain.
NORMAL : Normal black gain.
BLACK COMPRESS : Reduces the black gain.

Reference Page 37.

⓫ [W.BAL] White balance switch

There are three white balance modes possible with this switch.

AUTO 1 : If white balance is performed with the switch in this position it will be memorized into AUTO 1.
AUTO 2 : If white balance is performed with the switch in this position it will be memorized into AUTO 2.
PRESET : A non-erasable white balance setting to 3200K. An emergency setting for outdoors in with a 5600K or 5600K+ND filter turret setting.

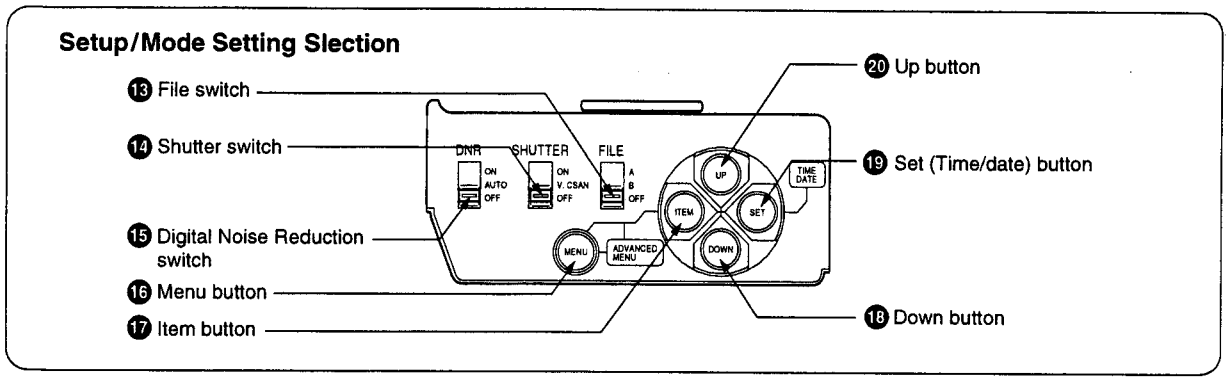
- FAW (Full-time Auto White) mode can be set to AUTO 1. AUTO 2 or PRESET with the ADVANCED MENU (see page 42). In the FAW mode, video color temperatures are constantly sampled for automatic adjustment to a proper white balance.

⓬ [MODE] Camera/color bars mode switch

This switche operate between camera and color bars video output.

2. CONTROLS, CONNECTORS AND INDICATORS

2-1 CAMERA HEAD (KY-D29) (Cont'd)



⑬ [FILE] File switch

This switch registers the set values at the ADVANCED MENU screen and reads the registered FILE.

FILE A : Register to the FILE A. (in registration)
Shooting can be carried out with the set values registered to the FILE A. (in reading)

FILE B : Register to the FILE B. (in registration)
Shooting can be carried out with the set values registered to the FILE B. (in reading)

OFF : Registration cannot be carried out. (in registration)
Shooting can only be carried out with the set values registered, other when the power is on or at the factory.

The items provided are items for the ADVANCED MENU.
Reference page 41.

⑭ [SHUTTER] Shutter switch

ON : This mode allows setting of different shutter speeds.
To change shutter speed push the UP ⑳ or DOWN ⑱ buttons.

V.SCAN : This mode helps adjust the shutter speed to match the scan rate of computer monitor.
Place the switch down in the V.SCAN position and then use the UP or DOWN buttons to adjust the speed.

OFF : This mode corresponds to the standard 1/60 (NTSC), 1/50 (PAL).
Reference [Display shutter speed] on page 17.

■ WHEN TO USE

A shutter speed of 1/60th (NTSC), 1/50th (PAL) second is too slow to prevent blurring from normal actions when as subject is moving.
This gives a smooth and natural effect when watching motion normally, but in certain applications the video is to be displayed in slow motion or as a freeze. The blurring in this case reduces the possible sharpness of the image.

As one increases the shutter speed the amount of light collected is less and less, so consideration should be given to the effects of openning the iris and increasing gain.

Opening the iris reduces depth of field and causes foreground and background objects to go out of focus. This is a useful artistic technique.

⑮ [DNR] Digital Noise Reduction switch

The DNR allows improvement of the S/N. However, as this increases residual images in the case of moving subjects, the DNR should be turned on/off while observing the output video.

ON : The DNR is activated.
The setting values can be changed as described in "DNR LEVEL" on page 44.

AUTO : The DNR varies automatically according to the current gain.

OFF : The DNR is deactivated.

CAUTION :

If the sensitivity is increased (e.g., to 9dB or 18dB) under fluorescent lighting and the DNR is used at ON, these may be electrical noise caused by the flickering.

⑯ [MENU] Menu button

⑰ [ITEM] Item button

⑱ [DOWN] Down button

⑲ [SET (TIME DATE)] Set (Time/date) button

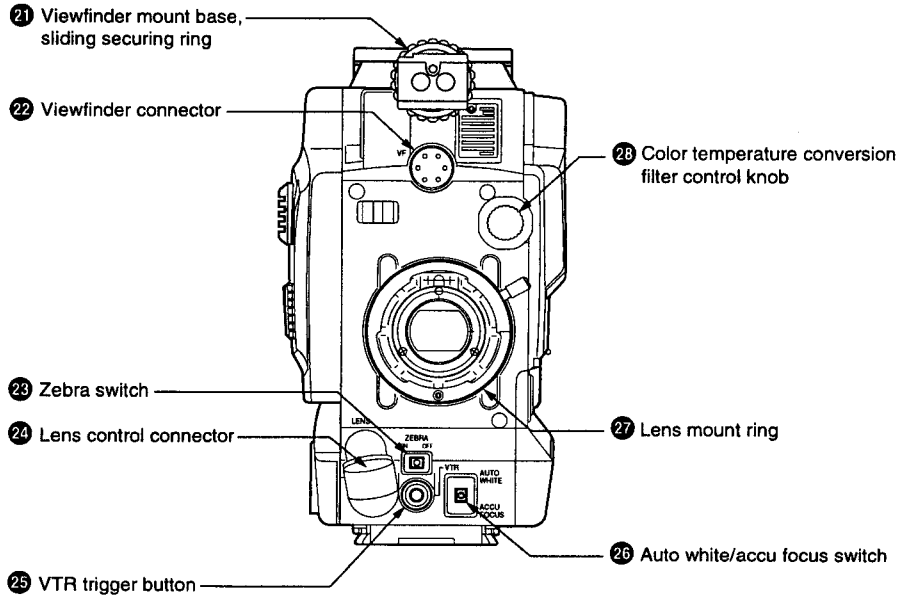
Pressing this button at the standard screen will display TIME DATE (Time/date) in the viewfinder and MONITOR OUTPUT connector.
Reference "TIME DATE Display" on Page 17.

⑳ [UP] Up button

Buttons ⑯ to ⑳ are used to control the menu screens.
Reference "Menu Screen" on page 39.

2-1 CAMERA HEAD (KY-D29) (Cont'd)

[Front panel]


㉑ Viewfinder mount base, sliding securing ring
㉒ Viewfinder connector
㉘ Color temperature conversion filter control knob
㉓ Zebra switch
㉔ Lens control connector
㉗ Lens mount ring
㉖ Auto white/accu focus switch
㉕ VTR trigger button

㉑ Viewfinder mount base, sliding securing ring
Mount the VF-P116 or VF P115 viewfinder (optinal) on the base and secure it using the sliding securing ring.
Reference "Viewfinder installation" on page 19.

㉒ [VF] Viewfinder connector
Connect to the cable from viewfinder.

㉓ [ZEBRA] Zebra switch
When this switch is ON, a zebra pattern is displayed with a brightness corresponding to 70% to 80% (or more than 100%) video levels on the viewfinder screen. This pattern can be used as a reference for manual adjustment of the lens iris.
- The display is visible only on the viewfinder screen. The zebra pattern is not displayed in the video output signal.

Reference: "Zebra pattern display during manual adjustment" on page 35.

㉔ [LENS] Lens control connector
Connect 12pin lens control cable from lens.
Lens connector function

Pin No.	function	Pin No.	function
1	RET switch	7	IRIS position
2	VCR trigger	8	IRIS A/R INPUT
3	GND	9	EXTENDER position
4	Lens AUTO/MANU control	10	ZOOM position
5	IRIS control	11	—
6	+12V DC	12	—

Lens connector function

㉕ [VTR] VTR trigger button (record start/stop button)
With the VCR set in record pause mode, record start/stop can be effected with this button.
(It is interlocked with the lens and the VTR trigger button on the side panel.)

㉖ [AUTO WHITE / ACCU FOCUS] Auto white / accu focus
- AUTO WHITE:
  First position a white object to occupy 80% of the center of the image.
  Setting this switch to the upper position ("AUTO WHITE") will provide automatic adjustment for white balance.
  Is not activated in preset, full auto shooting, full-time auto white blance and color bar mode.
  Reference : "White balance adjustment" on page 34.
- ACCU-FOCUS
  - When this switch is set to "ACCU FOCUS" in the lower position, The lens iris will be forced to open.
  - The object depth can be reduced and the lens focusing can be adjusted more accurately.

CAUTION :
- As the automatic shutter is activated here, flicker may appear on the screen depending on the lighting conditions (such as a fluorescent lamp, etc.)
- Operation is not possible in the LoLux and Super-LoLux modes.

㉗ Lens mounting ring / Lens lock lever
Hold the lens and use the knob to twist the ring counterclockwise to release lens.
To mount lens make sure the lens guide pin fits well, and then twist the ring clockwise until firm.
Reference "Lens installation" on page 19

㉘ [FILTER] Color temperature conversion filter control knob
This knob changes the internal filter of color temperature.
Reference "Filter" on page 31.

2. CONTROLS, CONNECTORS AND INDICATORS

2-1 CAMERA HEAD (KY-D29) (Cont'd)

㉙ **[REMOTE] Local Remote control connector (6pin)**
This remote connector allows the connection of the RM-LP80/LP35/LP37 local remote control unit (optional) and the VC-P891/VC-P892 interface cable (optional)
Reference "Connection with a local remote control unit" on page 49.

㉚ **[MONITOR OUTPUT] monitor output connector**
Video output is for camera composite video only. Return video signals from the VCR are not output. The function display on the viewfinder can be selected with [DISP MIX]㊱.

㉛ **[GENLOCK INPUT] Sync signal input connector**
External reference composite video or black burst video input.This camera cannot be genlocked with the VCR playback signal.
Reference "Connection to the switcher" on page 45.

㉜ **[PHASE H] Horizontal phase control**
Use this control to adjust the H sync phase while the genlock signal is input.

㉝ **[PHASE SC FINE] Color sub-carrier phase control**
Use this control to fine-adjust the SC phase while the genlock signal is input.

㉞ **[PHASE SC COARSE] Color sub-carrier phase coarse adjustment control**
Use this control to coarse-adjust the SC phase while the genlock signal is input.
The SC phase will toggle between 0°, 90°, 120°, and 180°.
Reference "Connection to the switcher" on page 45 for㉜through㉞.

㉟ **[MIC INPUT +48V] Microphone input switch**
This switch selects whether a +48 V voltage is to be supplied at the microphone input connector㊳or not.
ON : +48 V is supplied.
OFF : +48 V is not supplied.

㊱ **[DISP MIX] Character display switch**
This switch selects whether the characters on the viewfinder screen are to be displayed in the video output from the MONITOR OUTPUT㉚or not.
ON : Characters are displayed.
OFF : Characters are not displayed. (Time is displayed)

㊲ **Microphone holder mounting screws**
The provided microphone holder can be mounted here.
Reference [Microphone installation] on page 19.

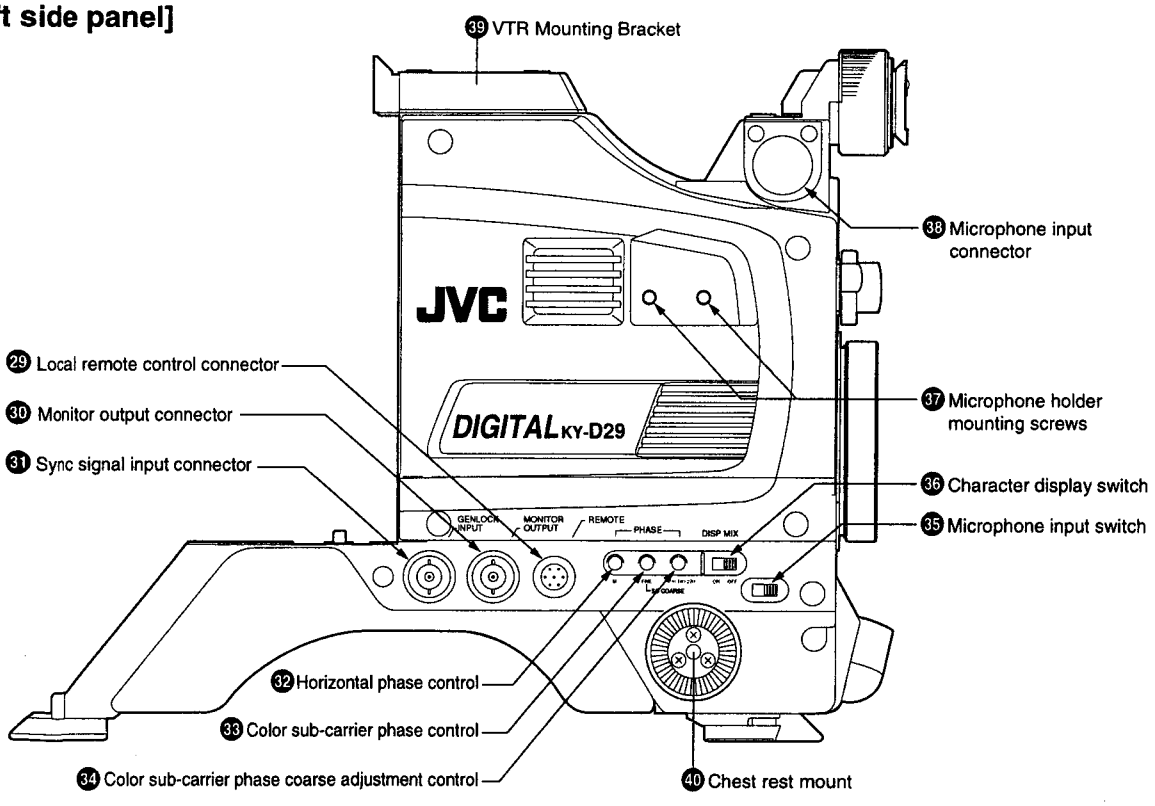
㊳ **[MIC] MICROPHONE INPUT connector**
This balanced XLR three connector is for microphone level only.

Pin No.	Function
1	GND
2	HOT
3	COLD

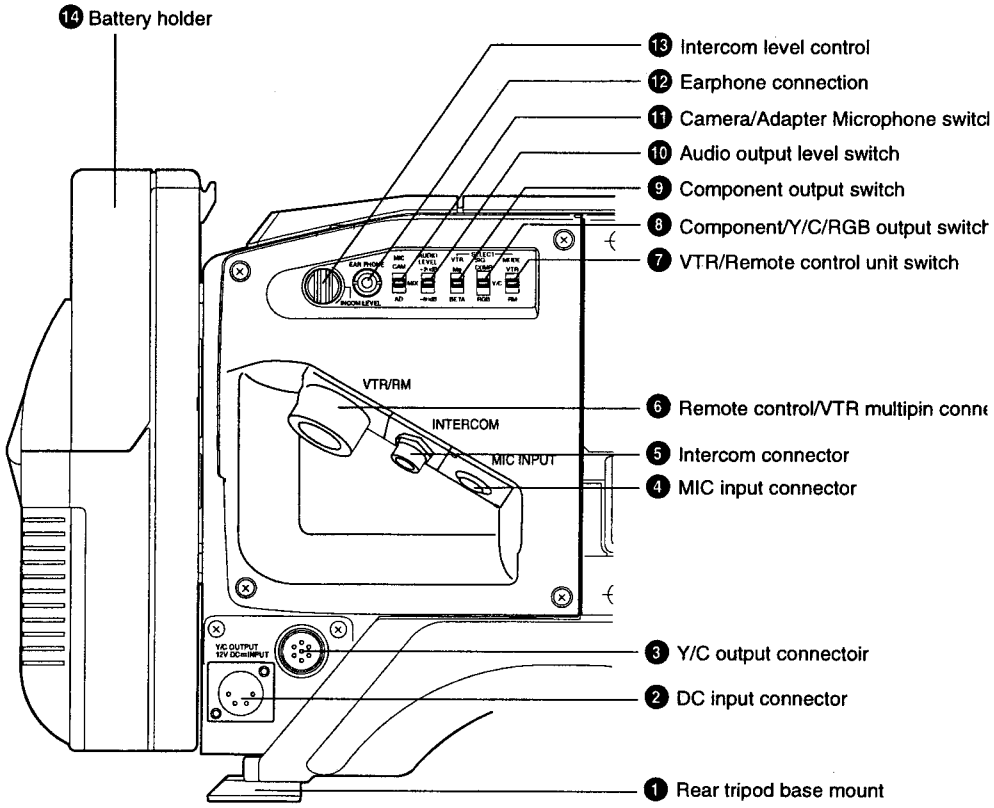
㊴ **VTR Mounting Bracket**
This is a bracket for mounting the VTR when it is attached to the unit.

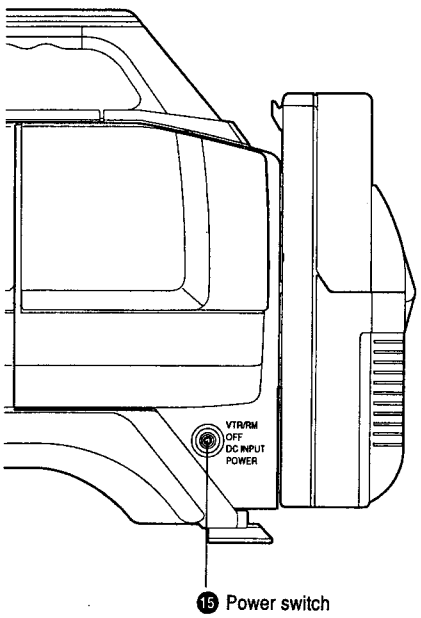
㊵ **Chest Rest Mount**
Used to install the KA-111 Chest Rest (Optional).

[Left side panel]



2-2 CAMERA ADAPTER (KA-27U)





❶ Rear tripod base mount (KY-D29)

This is one of the base mounts used to install the tripod base on the camera.
Together with the front tripod base mount, it secures the camera on the tripod base.
Reference "Mounting the camera on the tripod base" on page 24.

❷ [12V DC ⎓ INPUT] DC INPUT CONNECTOR

This connector is designed for 12 volts DC input.
This connector is activated by setting the POWER SWITCH ⓯ to DC INPUT, and has priority over the Battery holder ⓮.

Pin No.	Function
1	GND
2	—
3	—
4	+12V

DC In connector function

Refer to the section 2.3.2 "MODE SELECT switch" in the KA-27's service manual (No. 60073) on page 3-1.

2. CONTROLS, CONNECTORS AND INDICATORS

2-2 CAMERA ADAPTER (KA-27) (Cont'd)

❸ [Y/C OUTPUT] VIDEO OUTPUT

Video output is for Camera Video only, Y/C358 signal is output. Return Video from the VCR or character display on the viewfinder is not available.

Pin No.	Function
1	Y OUT
2	GND
3	—
4	—
5	C OUT
6	GND
7	—

Y/C connector function

❹ [MIC INPUT] MIC INPUT CONNECTOR

This is an input for mic level only; with an balanced XLR three pin connector.

Pin No.	Function	Input specifications
1	GND	
2	HOT	–60 dBm
3	COLD	

MIC INPUT connector function

❺ [INTERCOM] INTERCOM CONNECTOR

The connector is for remote control unit and headset of intercom.

❻ [VTR/RM] REMOTE CONTROL/VCR MULTIPIN CONNECTOR

Use to connect to a VCR or the RM-P200 and RM-P300 Camera Control Units.

❼ [MODE] VTR/REMOTE CONTROL UNIT SWITCH

VTR : Set to VTR for any kind of VCR connection.
RM : Set to Remote if RM-P300 or RM-P200 is connected.

Note :

When a portable VHS VCR is connected to the KA-27 camera adapter, the KA-27 should be adjusted internally to change the trigger mode. Please consult your local JVC-authorized service dealer.

❽ [SIG SELECT] COMPONENT/ Y/C /RGB output switch

The signal sent through VTR / RM connector ❻ can be selected for one of these three signals in addition to composite video.

COMP : Component signals are output.
Y/C : Y/C signals are output.
RGB : RGB signals are output.

❾ [VTR SELECT] Component output switch

This switch selects the component signal output level so that the standard signal can be output according to the VCR type of MII or Beta.
This switch is valid only when the ❽ switch is set to "COMP".
MII : Set to this position when recording onto a MII VCR.
BETA : Set to this position when recording onto a Betacam VCR.

❿ [AUDIO LEVEL] Audio output level switch

The audio output level should be switched according to the VCR used for recording.

⓫ [MIC] Camera microphone/adapter microphone switch

This switch is used to select the microphone input source between the microphone mounted on the camera and that connected to the adapter.
It is not possible to record audio signals from both microphones.
CAM : The input from the camera's microphone input connector ㊳ is valid.
AD : The input from the adapter's MIC INPUT connector ❹ is valid.

⓬ [EAR PHONE] EARPHONE CONNECTOR

This connector is used to monitor the VCR audio signal and the microphone input.
The VCR must be in record/pause mode so that the camera microphone input can be monitored.
* Some VCRs for VHS only do not return the playback audio to the camera.

⓭ [INCOM LEVEL] INTERCOM LEVEL CONTROL

Controls the volume of the intercom headset connected to the Intercom connector ❺.

⓮ BATTERY HOLDER

Shown here is the standard battery holder. This can be used for Flat shape type and NB-G1 Batteries.
DC input connector ❷ has priority over this battery holder.

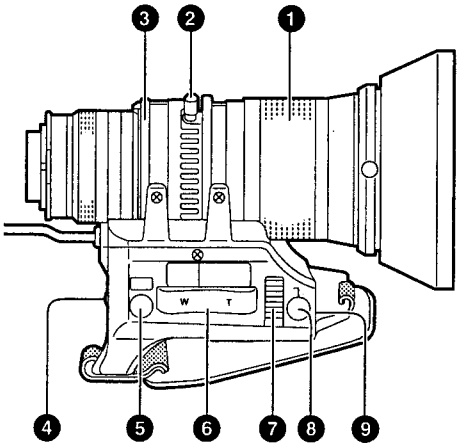
⓯ [POWER] POWER SWITCH

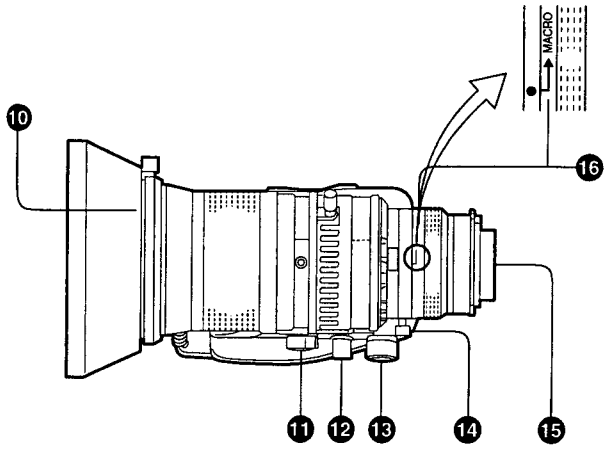
This switch chooses the type of power source and turns on the camera.
VTR/RM : Power is supplied through the Multipin Connector from an external VCR or Remote Control Unit.
OFF : Master Power Off for Camera.
DC INPUT : Power is supplied from the onboard Battery pack or DC INPUT ❷. DC INPUT has priority over the on-board battery.

WARNING :

Do NOT unplug or plug the power while shooting, even if a battery is installed, or the image may be disturbed.
Be sure to set the Operate switch on the camera to OFF/SAVE when plugging or unplugging the power.

2-3 LENS





1 FOCUS RING
Manual focus ring.

2 Zoom lever/ring
This is the manual zoom ring equipped with a zoom lever. To activates the zoom feature on, turn the zoom mode knob ⓫ to position "M".

3 IRIS RING
Manual Irisi ring. To activate the auto iris feature, set the Iris Mode switch ❼ to A.

4 VTR TRIGGER BUTTON
To start shooting push once.
To stop shooting push again.

5 RETURN VIDEO (RET) BUTTON
The return video signal from the VCR or the remote control unit when connected, can be monitored on the viewfinder only while pushing this button.
• The Viewfinder Status display is not available during this operation.

6 ZOOM SERVO CONTROL LEVER
Pushing this lever in the W direction makes the lens move wider.
Pushing this lever in the T direction makes the lens move tighter. Pushing harder changes the speed of the Zoom. To operate the servo zoom feature with this lever, set the ZOOM MODE switch ⓫ to S.

7 IRIS MODE SWITCH
A : Activates the auto iris feature.
M : Allows manual iris control.

8 MOMENTARY AUTO IRIS BUTTON
When the IRIS MODE switch is at M, pushing this button activates the Auto Iris Function while it is held down only.

9 IRIS SPEED ADJUSTING BUTTON
Adjusts the iris operation speed.

10 FILTER SCREW
Protect the lens with a Clear or UV filter by screwing on to the front inside of the lens hood.
Other filters can be used for various effects.

11 ZOOM MODE KNOB
S : Servo Zoom mode. Allows operation by the Zoom Servo Control lever ❻.
M : Manual Zoom mode. Allows zoom control by the Zoom lever/ring ❷.

12 REMOTE FOCUS CONTROL CONNECTOR
To connect with an optional focus servo unit.

13 ZOOM SERVO CONNECTOR
Connect with an optional zoom servo unit.

14 BACK FOCUS RING / FIXING SCREW
For Set-up Back Focus adjustment only.
Secure with the Screw knob after adjustment.

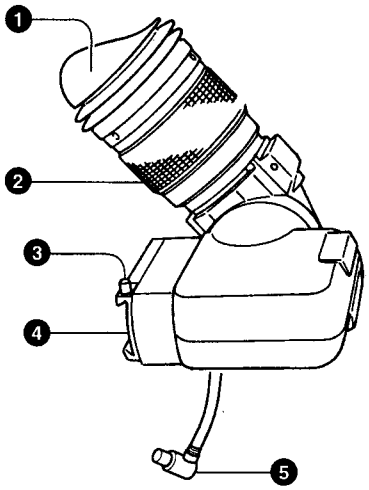
15 REAR LENS SURFACE
Protect with special cover.

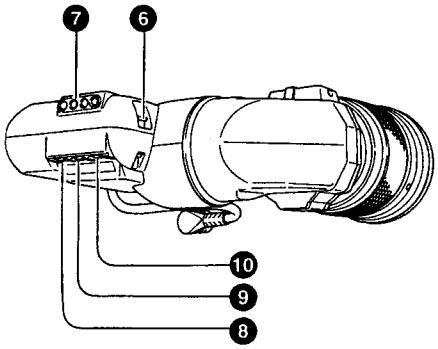
16 Macro focusing ring (for close-up shooting)
By rotating this ring in the direction of the arrow, the lens becomes capable of close-up shooting of very small object.
Normal focus adjustment and zooming are not available in the macro mode.
To shoot images in the macro mode, set the focus ring to the infinite position and the zoom ring to the widest angle position.
To adjust the focus of the macro image, rotate this ring in the direction of arrow until the object is focused.

CAUTION :
The back-focus knob is located close to the macro ring, be careful not to mistake the back-focus knob for the macro ring. After the required operation, be sure to return the macro ring to the normal position.

2. CONTROLS, CONNECTORS AND INDICATORS

2-4 VIEWFINDER (VF-P116)





1 EYEPIECE

Blocks light to viewfinder screen and holds eye optics.
The Eyepiece can be opened to view the screen directly.

2 Eyepiece focusing ring

Rotate this ring to adjust the viewing angle.
Be sure to adjust this ring because the viewing angle affects the lens focus adjustment.
To perform more reliable focus adjustment, it is recommended to turn on the contour with the PEAKING control 8.

3 STOPPER SCREW

This stopper screw prevents the viewfinder from coming off the camera.

4 VIEWFINDER SHOE

Attaches to the Viewfinder Mount base on camera.

5 CABLE

Connect to camera viewfinder connector.

6 TALLY SWITCH

Set this switch to off if you do not want to inform the subjects by the Tally light that they are being recorded.
ON : Lights the Tally lamp 7 during recording.
OFF : Does not light the Tally lamp 7.
However, the REC lamp at the eyepiece will not turn off.

7 TALLY LIGHT

Lights when recording is in progress.
The light does not come on when the Tally Switch 6 is at "OFF".

8 [PEAKING] Peaking (contour) control

Rotate to adjust the contour of the viewfinder screen image.

9 [CONT] CONTRAST

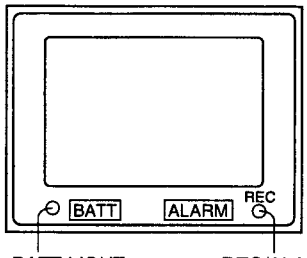
Controls the level of Viewfinder contrast.

10 [BRIGHT] BRIGHTNESS

Controls the level of Viewfinder brightness.

2-5 VIEWFINDER DISPLAY

Warning indicators inside the viewfinder

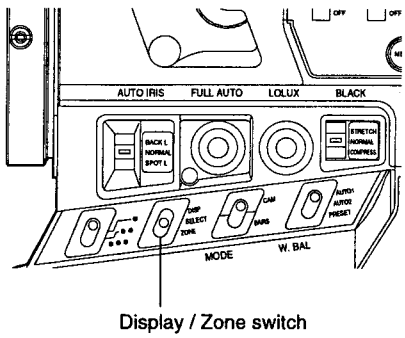


The viewfinder has two LED indicators below the screen. These LEDs light or blink to indicate the present status of the camera or the VCR's camera control unit.

- **[BATT] BATTERY LIGHT**
  This blinks red when battery voltage becomes too low for the camera to operate.
  • Some VCRs signal low battery with the REC/ALARM light.
- **REC/ALARM LIGHT**
  This light green for these conditions.
  Solid Green : While recording.
  Blinks Green : • While the VCR prerolls before recording.
  • If the Tape is finishing.
  • If the VCR Malfunctions
  • For some VCRs this indicates Low Battery.

Note :
With some VCRs, the REC indicator may turn off when the green tally blinks during recording. In this case, the accumulating timer does not operate.

Viewfinder screen display

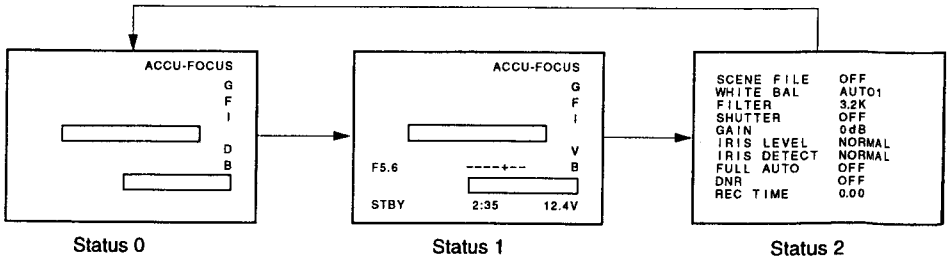


The viewfinder screen displays the following information:

1. Status screens (screens for use in checking the current camera setup)
2. Alarm message display
3. Safety zone display
4. Setting screen (screen for use in the camera setup including the date)
5. Auto white balance display
6. Shutter speed display
7. TIME DATE display

1. STATUS SCREENS

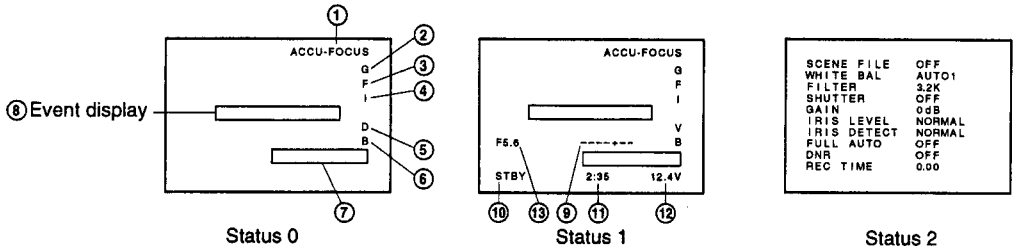
To display the status screens on the viewfinder screen, push the Display/Zone switch upward. One of the three kinds of status screen can be displayed every time the switch is pushed upward.



Status 0 Status 1 Status 2

2. CONTROLS, CONNECTORS AND INDICATORS

2-5 VIEWFINDER DISPLAY (Cont'd)



Status 0 Status 1 Status 2

■ Status 0

	Display	Function
①	ACCU-FOCUS	Displayed during ACCU-FOCUS operation.
	S	Displayed when the Shutter or V. Scan is ON.
	FAS	Displayed when the Full Auto Shooting is ON.
	ALC	Indicator which appears when the individual ALC is ON.
②	G	Displayed in other modes than 0 dB, LOLUX and ALC.
	L	Displayed during LOLUX/S.LOLUX operation.
③	F	Displayed when the FAW is ON.
④	I	Displayed when the Auto iris level is set to the back light or spotlight operation.
⑤	D	Displayed when the DNR switch is set to ON or AUTO.
⑥	B	Displayed when the black stretch or black compression switch operation.
⑦	Time/Date display	Reference Page 40.
⑧	Event display	See right-hand figure.

■Status 1

In addition to the information on the status 0 screen, this screen displays information on the audio indicator, accumulated recording time, voltage and lens F number.

Display position	Display	Function
⑨	- - - - + - -	Audio indicator. Bar is Indicated
⑩	STBY REC SAVE No display	VCR in standby mode VCR in record mode VCR in save mode Others
⑪	(Example) 2:35	Accumulated recording time (ACCUM) The counting limit is 999 min. 59 sec. After this, the accumulated count restarts from 0 min. 00 sec.
	< 10 (< 5)	Remaining tape time (REMAIN) This is displayed when the remaining amount of tape drops below 10 minutes (with a camcorder-type configuration using S-VHS). With certain VCRs, this information is displayed when the remaining amount of tape drops below 5 minutes. * The TAPE NEAR END and TAPE END indicators are shown at alarm display position ③ on page 17.
	The accumulated recording time (ACCUM) and the remaining tape time (REMAIN) information can be switched with the menu item "REC TIME" in the Advance Menu. See page 42.	
⑫	12.4 V (for example)	Voltage display (in 0.1 V steps).
⑬	F1.4, F2, F2.8, F4, F5.6, F8, F11, F16, CLOSE	

■ Event display

is displayed for only about 2 seconds on the viewfinder screen when any of the following switches is operated.

Switch	Event Display Contents	
ZEBRA	ZEBRA	ON, OFF
BLACK STRETCH/ BLACK COMPRESS	BLACK	STRETCH, NORMAL, *COMPRESS
GAIN	GAIN	-3 dB, 0 dB, 6 dB, 9 dB, 12 dB, 18 dB, ALC
W.BAL	W.BAL	AUTO 1, AUTO 2, PRESET, FAW
FULL AUTO	FULL AUTO	ON, OFF
IRIS	IRIS	BACK.L, NORMAL, SPOT.L
LOLUX	LOLUX	ON, OFF
DNR	DNR	ON, AUTO, OFF
FILTER control	FILTER	3.2K, 5.6K, 5.6K+ND, EFFECT
FILE	SCENE	FILE A, B, OFF

■ Status 2

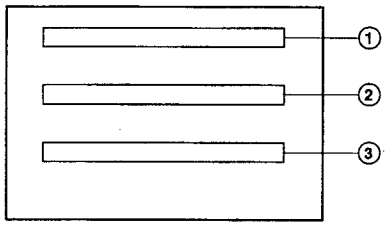
This screen displays the camera setup.

Display position	Display Contents
SCENE FILE	A, B, OFF
WHITE BAL	AUTO 1, AUTO 2, PRESET, FAW, *MANUAL
FILTER	3.2K, 5.6K, 5.6K+ND, EFFECT
SHUTTER	NORMAL, 1/100 (NTSC), 1/120 (PAL),1/250, 1/500, 1/1000, 1/2000, V.SCAN level, EEI (in ALC mode)
GAIN	-3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 18 dB, LOLUX, ALC
IRIS LEVEL	BACK.L, NORMAL, SPOT.L
FULL AUTO	ON, OFF
DNR	OFF, AUTO, ON
REC TIME	Tape remaining time or ACCUmulated recording time

* Displayed only during the setup operation from the remote control unit.

⑩, ⑪, and ⑫ are not displayed when the camera head is connected with RM-P200, RM-P300, and RM-P270.

2-5 VIEWFINDER DISPLAY (Cont'd)



2. Alarm message display

The following alarm messages are displayed on the status 0 and status 1 screens.

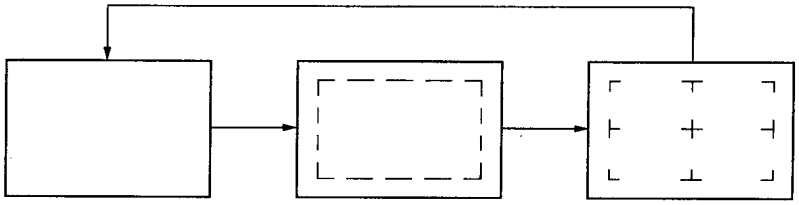
Display position	Display	Contents
①	LOW BATTERY	The battery capacity is nearly exhausted.
②	VCR WARNING VCR OP MISS	VCR error VCR operation mistake.
③	TAPE NEAR END TAPE END	The remaining tape time has dropped below 3 minutes. The end of the tape has been reached.

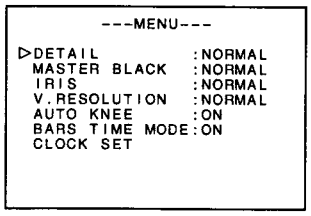
Note :

Some messages may not be displayed depending on the type of VCR.

3. Safety zone display

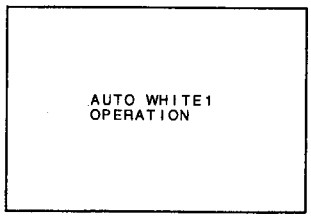
To display the safety zones on the viewfinder screen, push the DISPLAY/ZONE switch downward. One of the three kinds of safety zones can be displayed every time the switch is pushed downward.





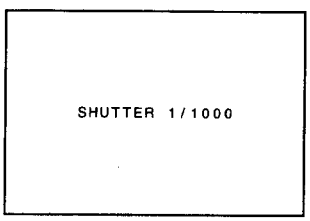
4. Setting the screen display

Screen for use in the date setting and other camera setups.
Reference "FLOW OF Menu screen" on page 38.



5. Auto white balance display

This screen appears during the auto white balance adjustment operation to display various data.
Reference "White balance adjustment" on page 34.



6. Shutter speed display

When the SHUTTER is on, a shutter speed is displayed. (for approx. 5 sec.)
Also, whenever the shutter speed is altered by using the UP/DOWN button, the shutter speed is displayed.
While this is displayed, other displays disappear.
Reference [SHUTTER] on page 8.

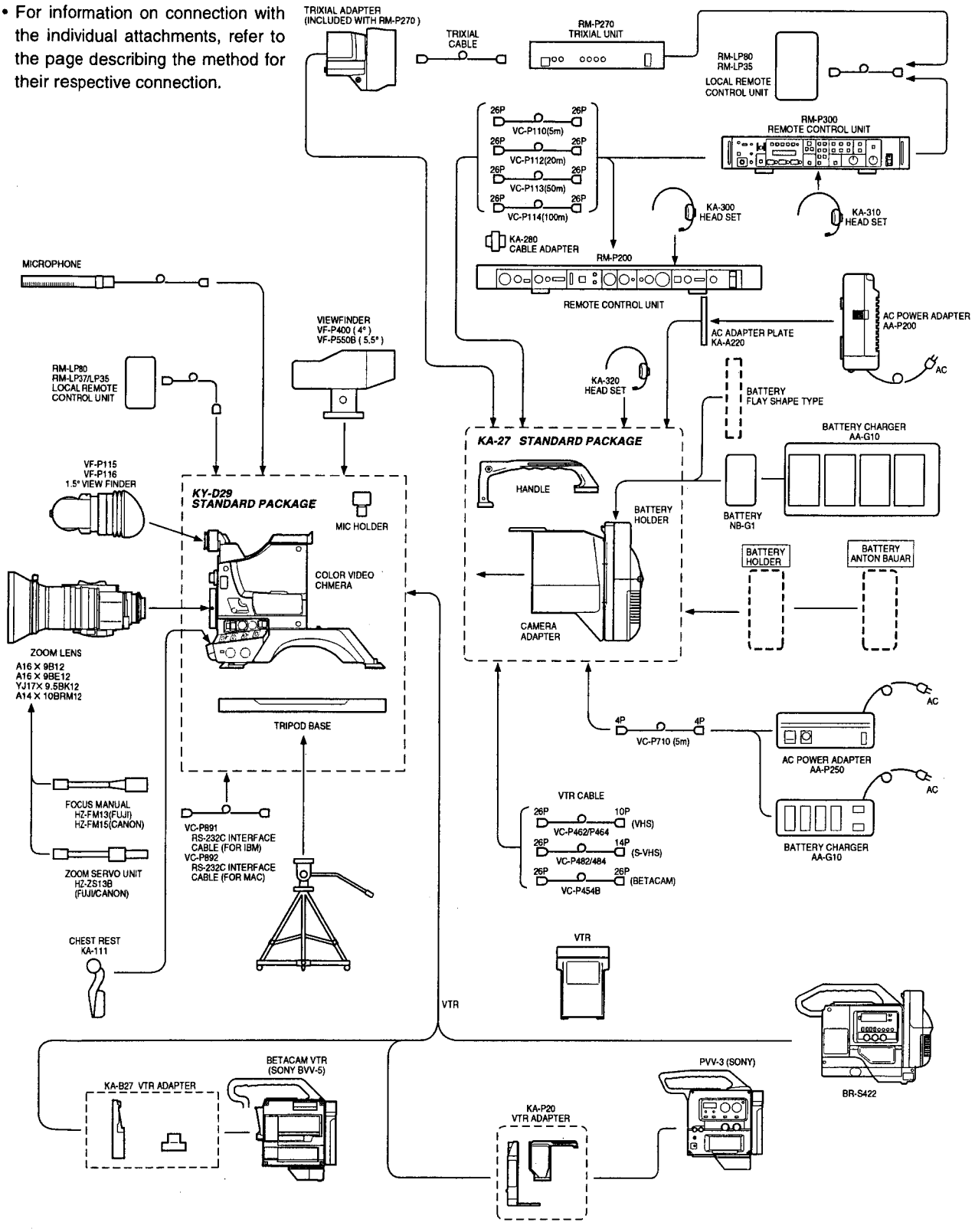
7. TIME DATE display

Pressing the SET button will display the time and date. If you press it again, the display will disappear.

3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

3-1 BASIC SYSTEM

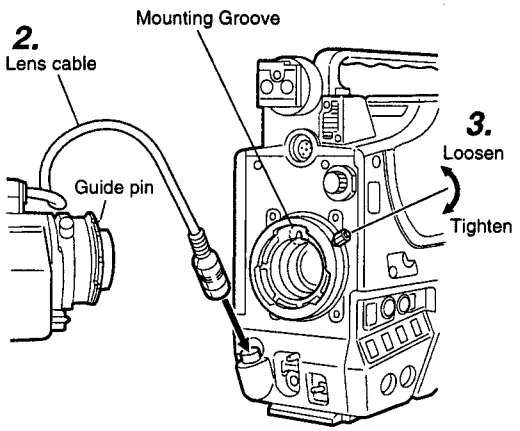
- For information on connection with the individual attachments, refer to the page describing the method for their respective connection.



Refer to the section 2.6.4 "Dynamic shading adjustment" on page 2-10.

3-2 INSTALLING THE BASIC SYSTEM

LENS INSTALLATION

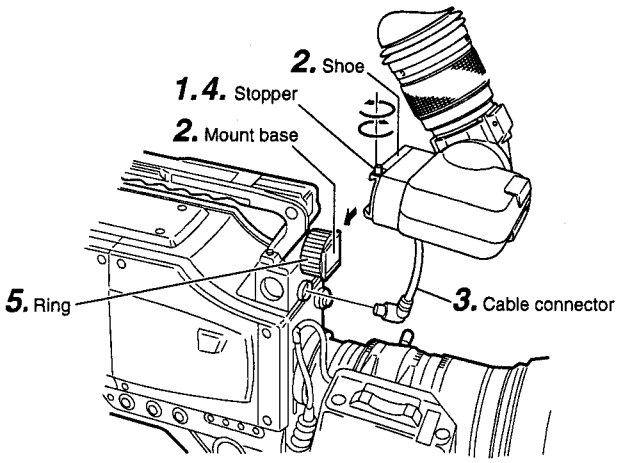


1. Remove the mount cap. Be careful there is no dust left inside the mount.
2. Connect the lens cable to the camera body.
3. Align the groove in the mount with the guide pin on the lens. Turn the lens-secure lever clockwise so the lens is secured firmly on the lens mount.

Note :

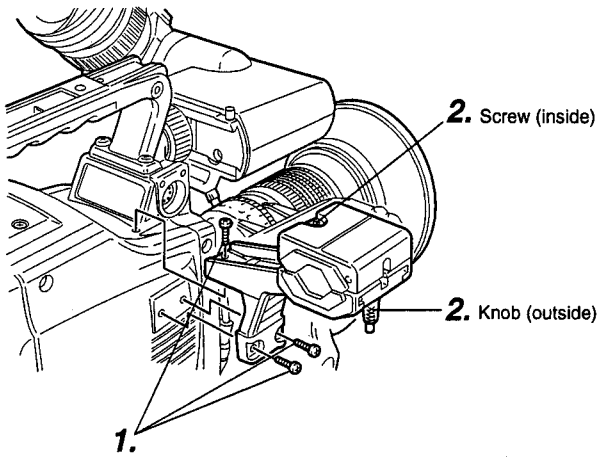
- Be sure tighten the lens completely, otherwise the back focus adjustment may be incorrect.
- Shading may occur at the top and bottom of the screen depending on which lens is employed. In this case, a readjustment inside the camera is necessary.
  Consult with your local JVC authorized service dealer when this occurs.

VIEWFINDER INSTALLATION



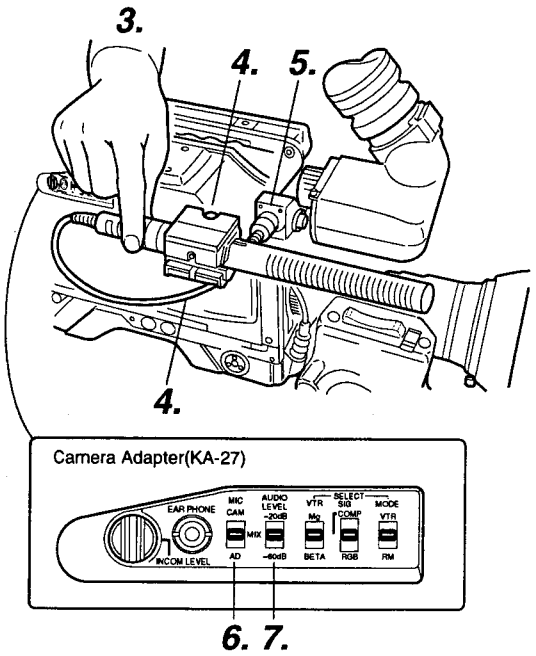
1. Loosen the stopper screw.
2. Attach the viewfinder with its shoe aligned with the Mount base.
3. Connect the cable.
4. Tighten the stopper screw.
5. Tighten the ring.

MICROPHONE INSTALLATION



1. Install the provided microphone holder onto the camera head using the 3 screws.
2. Loosen the innermost screw and also rotate the outer knob by rotating it. Pull the knob outward to open the microphone holder.

3-2 INSTALLING THE BASIC SYSTEM (Cont'd)



3. Set the microphone in the specified position paying attention to the left and right.

4. Secure the microphone onto the microphone holder by tightening the innermost screw and the outer knob so that the holder is horizontal.

5. Connect the microphone cable to the microphone input connector.

6. When the camera adapter (KA-27) is used, set the CAMERA/ADAPTER MIC switch properly.

CAM : When the microphone is connected to the microphone input connector of the camera head.

AD : When the microphone is connected to the 3-pin XLR MIC INPUT connector of the camera adapter.

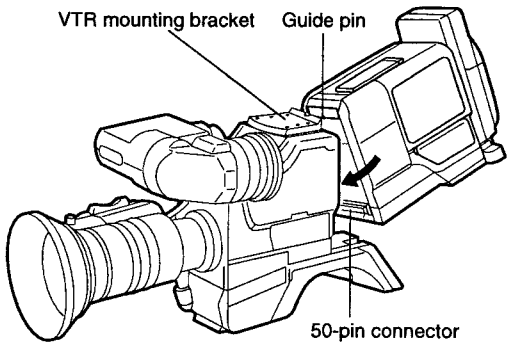
7. When the camera adapter (KA-27) is used, set the AUDIO OUTPUT LEVEL switch according to the rated input level of the portable VCR.

• Monaural recording

Monaural audio is recorded only on the VCR L channel.

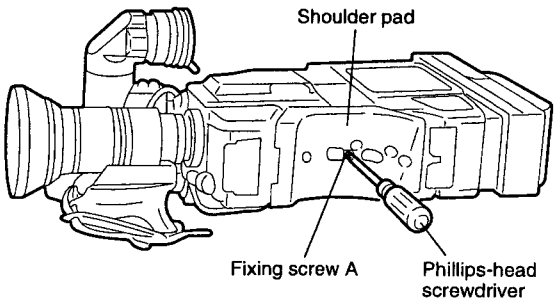
3-2 INSTALLING THE BASIC SYSTEM (Cont'd)

CONNECTION WITH A DOCKABLE VCR

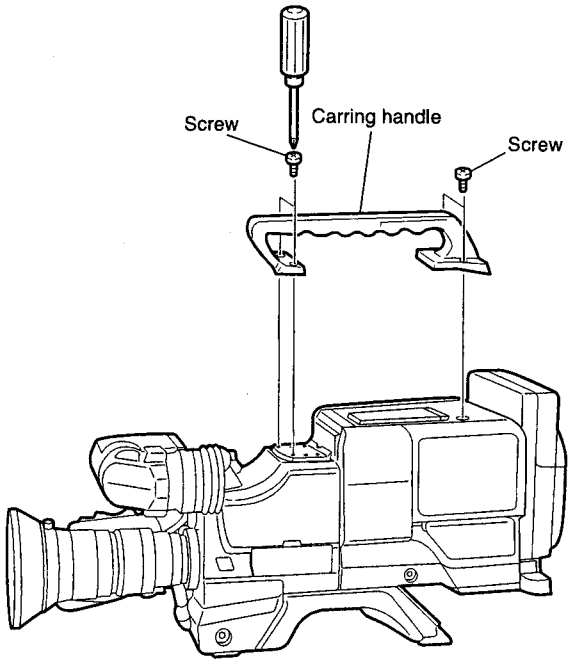


■ BR-S422U VCR ATTACHMENT

1. Align the BR-S422U's guide pin with the V groove of the camera's VCR mounting bracket after removing the cap of the 50-pin connector. Securely engage the BR-S422U's 50-pin connector to the camera's.



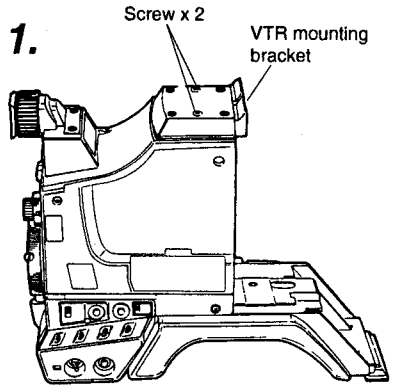
2. Secure the BR-S422U to the camera by inserting the fixing screws A through the camera's shoulder pad, using a Phillips screwdriver.

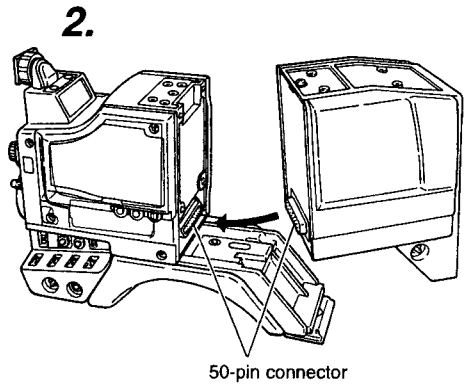


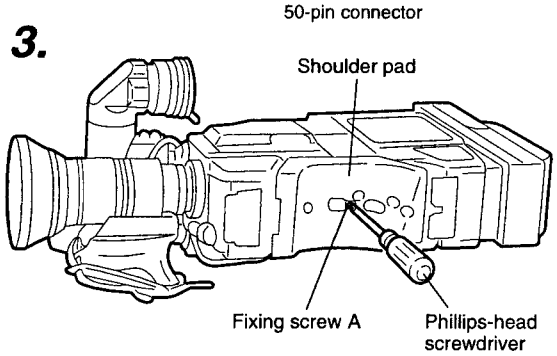
3. Secure the provided carrying handle with the BR-S422U to the camera and the BR-S422U with four screws, using a Phillips screwdriver as illustrated.

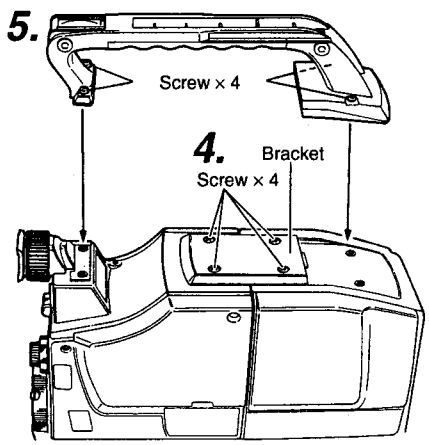
3-2 INSTALLING THE BASIC SYSTEM (Cont'd)

Connection with the camera adapter (KA-27)









The KA-27 camera adapter should be installed on the camera head when a portable VCR or camera control unit is to be used.

1. Remove the VCR mounting bracket to be used in the camcorder connection by loosening the 2 screws.

2. Attach the KA-27 to the rear of the camera head as if sliding the camera adapter on BOTTOM FRAME and plug in the 50-pin connector.

3. Secure the KA-27 to the camera by inserting the fixing screws A through the camera's shoulder pad, using a Phillips screwdriver.

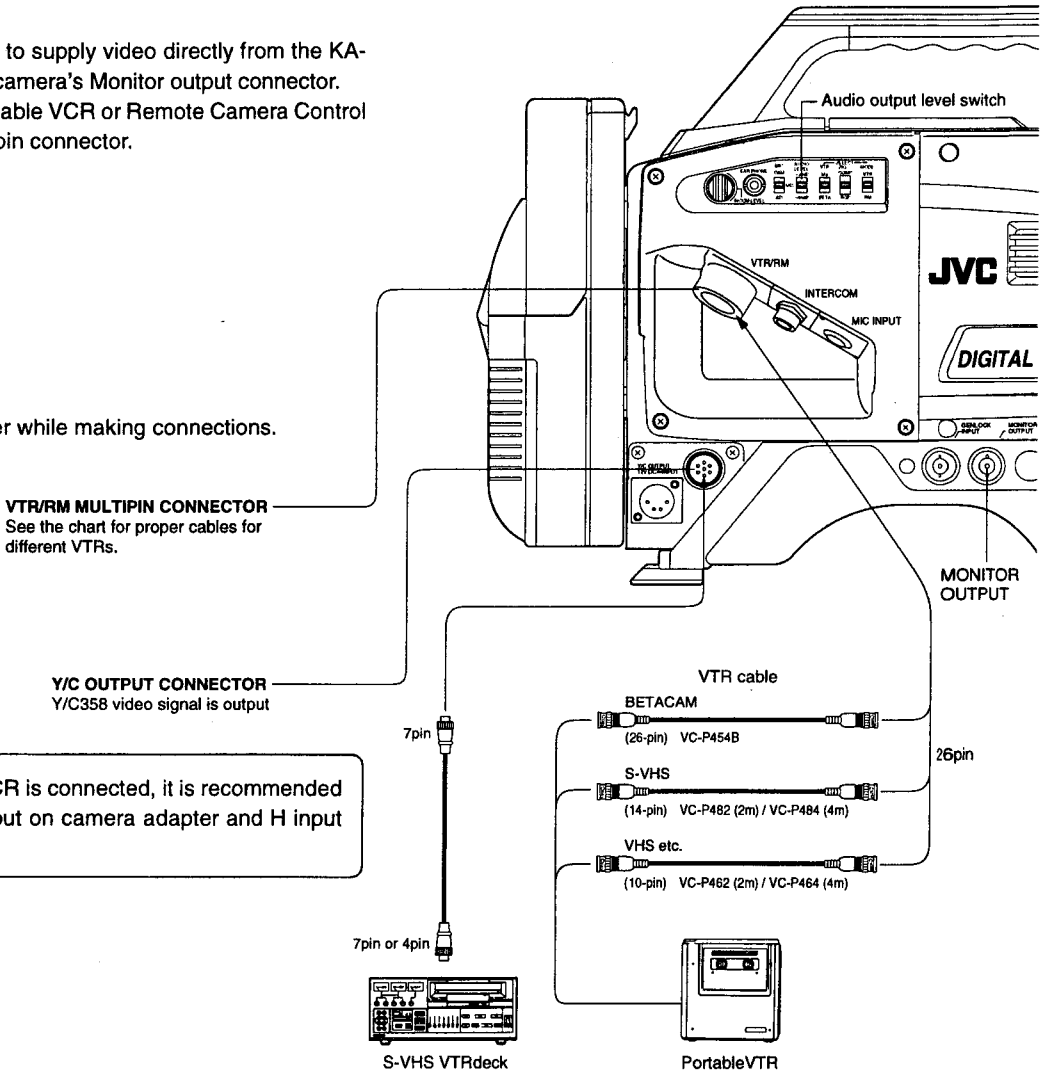
4. Secure the bracket provided with the KA-27 onto it using the 4 screws provided.

5. Attach the handle across the camera head and KA-27 using the 4 screws provided.

3-2 INSTALLING THE BASIC SYSTEM (Cont'd)

CONNECTION WITH A PORTABLE VCR

The KA-27 Camera adapter allows the Stand-alone use of the camera:
To power the camera so as to supply video directly from the KA-27 Y/C video output or the camera's Monitor output connector.
To connect directly to a Portable VCR or Remote Camera Control Unit through the VCR multipin connector.



■ CONNECTIONS

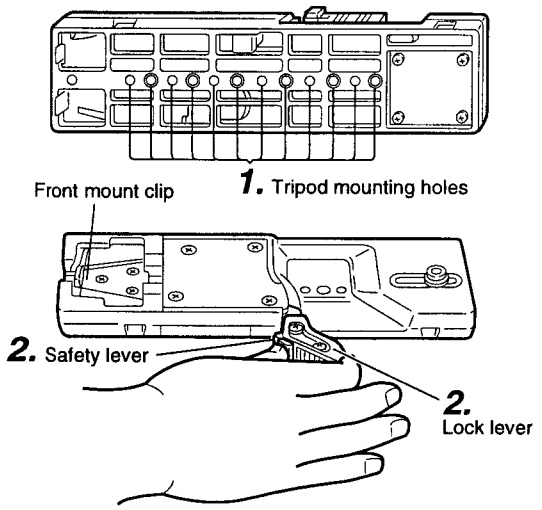
Before connections
Be sure to turn off the power while making connections.

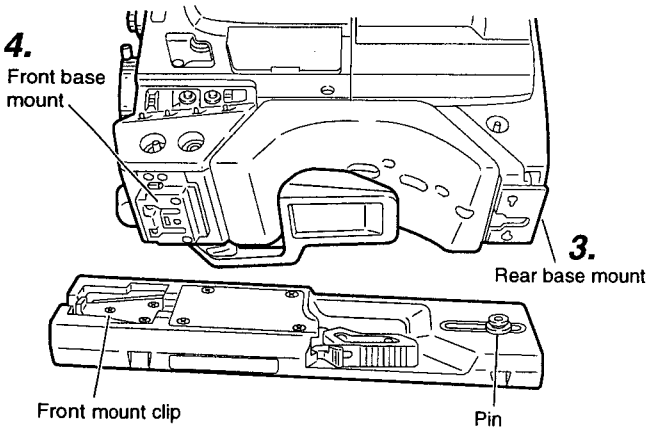
Note :

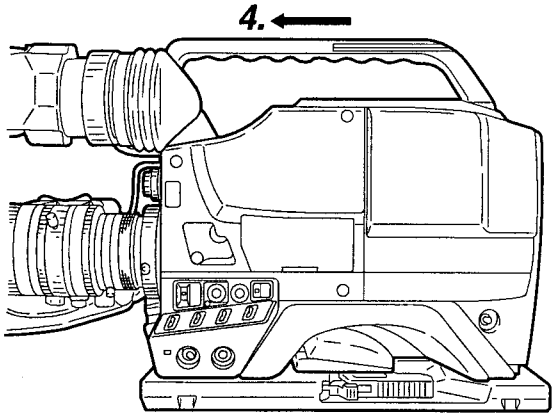
When S-VHS portable VCR is connected, it is recommended to use –20 dB audio output on camera adapter and H input level (–20 dB) on VCR.

3-2 INSTALLING THE BASIC SYSTEM (Cont'd)

TRIPOD INSTALLATION







The camera can be mounted on a tripod by means of the tripod base provided.

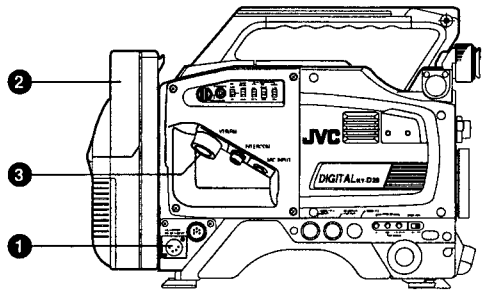
1. Attach the tripod base on the tripod by using the hole which balances the camera most optimally.
2. While pushing the safety lever, pull the lock lever toward the front until the front mount clip clicks into place.
3. Place the camera on the tripod base by aligning the rear base mount of the camera with the pin on the tripod base.
4. Push the camera from the upward direction and slide it toward the front so that the front base mount of the camera is locked by the front mount clip of the tripod base as it clicks into place.

CAUTION :

The front base mount may be locked while the pin of the tripod base is not inserted into the hole on the rear base mount of the camera. Therefore, after mounting, make sure that these parts are engaged properly.

3-3 POWER SUPPLY PREPARATION

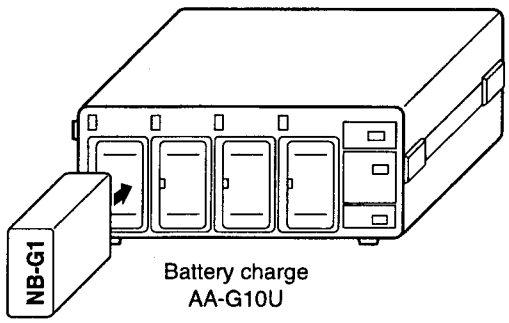
• Connection with KA-27



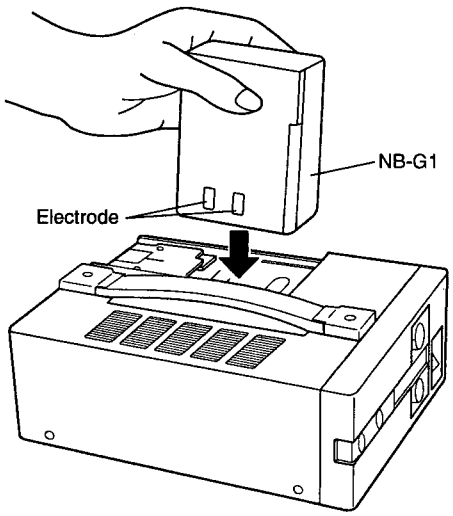
The power to the camera can be supplied with any of the 5 methods listed below.

- When the power supply select switch of the KA-27 camera adapter or camcorder-type VCR is set to DC INPUT:
  - Power supply from the AC adapter to ❶
  - Power supply from the DC 12 V battery to ❶
  - Power supply from the battery pack in the KA-27 or camcorder-type VCR to ❷
- When the power supply select switch of the KA-27 is set to VTR/RM :
  - Power supply from the remote control unit to ❸
  - Power supply from the portable-type VCR to ❸

BATTERY PACK OPERATION



Battery charge
AA-G10U



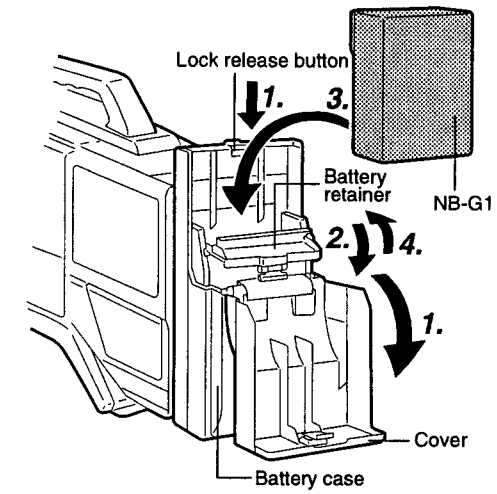
Battery charge
AA-P250

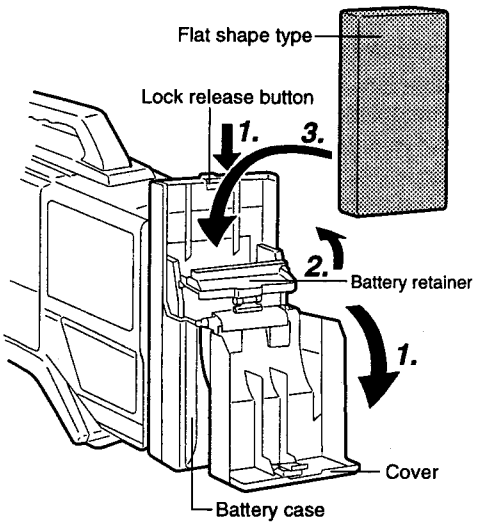
■ Tips for battery pack operation

- With a NiCd battery pack such as the NB-G1 and Flat shape type, the available operating time may be reduced by the use of the memory function.
  For details of each battery pack, please read the instruction manual of your battery.
- The viewfinder's green LED indicator alarm signals a drop in the VCR battery voltage while the red LED indicator and a character message alarm signals a drop in the camera battery voltage. Replace the corresponding battery pack whenever any of these alarms is given.
- Before recording, recharge the battery pack. Several battery packs should be kept charged according to the length of time shooting in the field.
  For NB-G1 batteries the AA-G10U sequential charger can handle the successive charging of 4 batteries. The AA-P250 is capable of recharging a single battery pack.
- Press the DISPLAY/ZONE switch upward, the Battery level can be monitored using the STATUS 1 DISPLAY.
  Note that the camera does not work at voltages under 10.5V.
  Reference : "VIEWFINDER DISPLAY" on page 15.
- Do not leave the battery pack in a place subject to high temperatures.
- Keep batteries warm (around 20°C) when shooting under cold conditions.

3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

3-3 POWER SUPPLY PREPARATION (Cont'd)



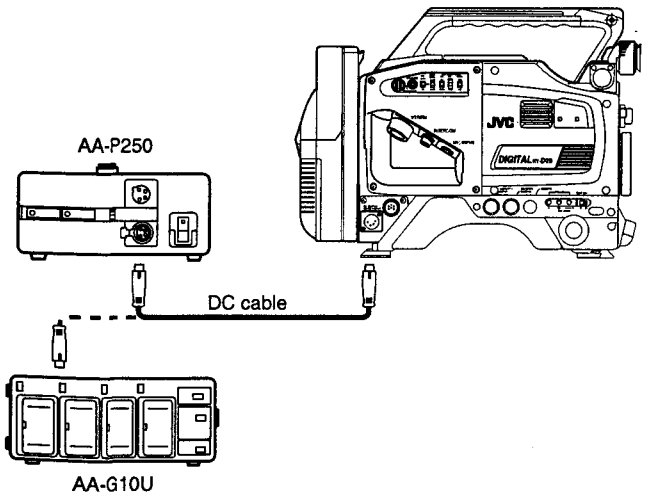


1. Press the Lock release button to open the cover.
2. For NB-G1 use swing out the battery retainer. For Flat shape type use the retainer should be shut.
3. Install the battery pack with the terminals facing the camera.
4. With NB-G1 batteries close the battery retainer, and then close the cover.
   For Flat shape type batteries close the cover.

■ TYPICAL BATTERY POWER USAGE

A typical docked VCR can use between 8.5W and 16W DC power. An average 2.2 Ampere/Hour NB-G1 battery should last about 30 minutes based on the VCR.
Additional use of the Lens Zoom will reduce battery life.
Additional use of the Save function will extend battery life.

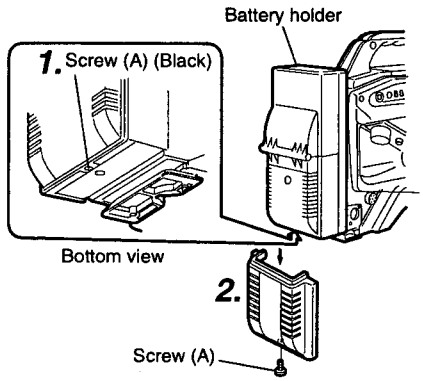
Power supply using the AA-P250/AA-G10



1. Connect the AA-P250 or AA-G10U power to the KA-27 camera adapter or the VCR using the 4 pin power cable supplied with the AC power adapter.
2. Set the Charge/Camera switch on the AA-P250 to "Camera". Press the "VCR" button on the AA-G10U.
3. Turn the AA-P250 or AA-G10U power switch to ON.
4. Set the Master Power Switch on the KA-27 or VCR to "DC INPUT".
   It is normally advisable for AC power to use the AA-P250 or AA-G10U Power supply.
   AA-P250 power consumption : DC12V maximum 3A
   AA-G10U power consumption : DC12V maximum 4A

3-3 POWER SUPPLY PREPARATION (Cont'd)

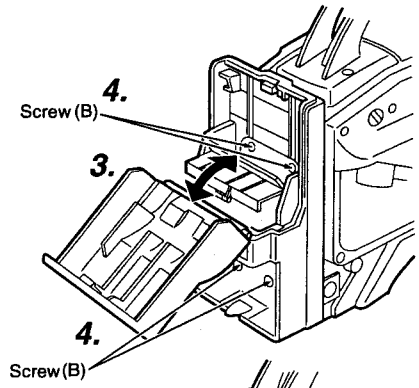
Power supply using the AA-P200



The AA-P200 AC adapter can be mounted onto the KA-27 camera adapter by means of the KA-A220 AC adapter plate (optional).

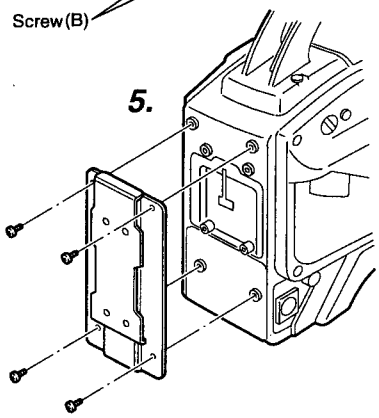
1. Remove the black screw (A) from the bottom of the battery holder.

2. Remove the lower half of the battery holder cover by sliding it downward.



3. Open the battery cover and Battery Holder Cover.

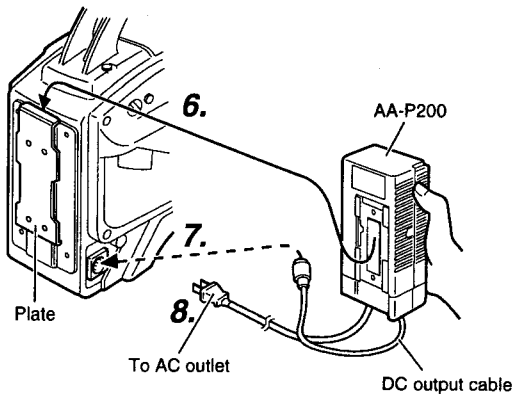
4. Remove the 4 screws (B) and unplug the connector between the camera adapter and the battery holder.



5. Remove the battery holder and attach the KA-A220 AC adapter plate using the 4 screws provided with the KA-27.

CAUTION :

Be careful not to pinch the connector cable from the camera adapter.



6. Attach the AA-P200 AC power adapter to the KA-A220 AC adapter plate.

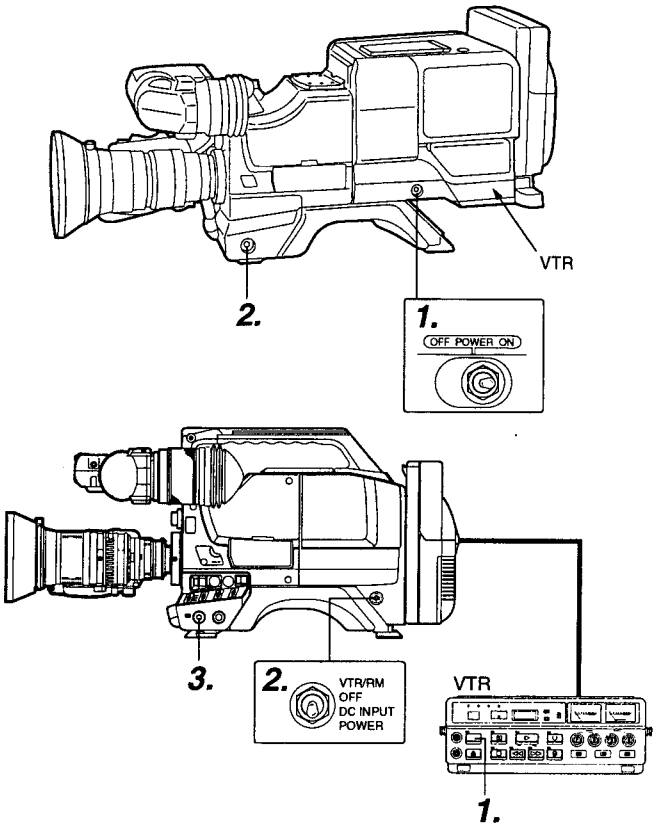
7. Plug the DC output cable into the DC INPUT connector of the camera adapter.

8. Plug the AC cord of the AA-P200 into a 120 V AC commercial power outlet. Then, turn on the power switch.

3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

3-3 POWER SUPPLY PREPARATION (Cont'd)

How to turn the power ON



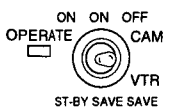
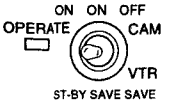
■ Camcorder type system

1. Set the power switch of the VCR to ON. This turns on both the VCR and the camera.
2. Set the OPERATE switch of the camera head to ON SAVE or ON ST-BY.
   The camera is turned ON and video is output at the viewfinder.

■ Portable VCR system

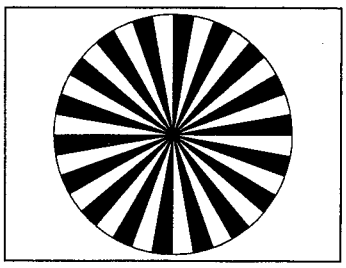
1. Set the power switch of the VCR or camera control unit to ON. This turns the VCR on.
2. Set the POWER switch of the KA-27 camera adapter to VTR/RM. The camera is turned ON.
3. Set the OPERATE switch of the camera to ON SAVE or ON ST-BY.
   The camera is turned ON and video is output at the viewfinder.

Functions of the OPERATE switch of the camera head

Switch	Setting	Function
	CAM (Camera) - OFF VTR ——— SAVE	Both the camera and VCR are turned off.
	CAM (Camera) - ON VTR ——— SAVE	The camera is turned ON but the VCR is put to the power-save mode in which the videoheads and cylinder are stopped. As the videosignal can be monitored on the viewfinder, this position can be used when adjusting the camera head. • This position can be used only with a VCR equipped with the power-save function.
	CAM (Camera) - ON VTR ——— STBY	The camera is turned ON and the VCR is put to the record-pause mode. Use this position when you are going to shoot immediately. • Some VCRs may not enter the record-pause mode.

3-4 ADJUSTMENTS BEFORE SHOOTING

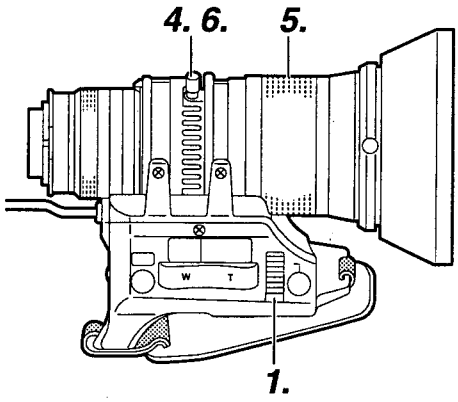
BACK FOCUS ADJUSTMENT OF A LENS

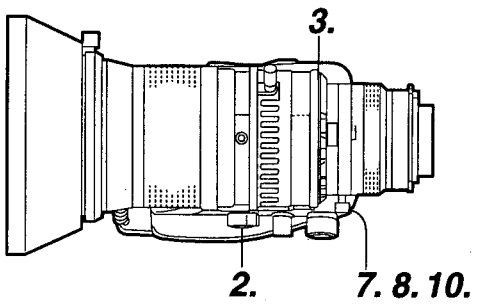


Object

It is only necessary to perform this when focusing is not correct in both the Telephoto and Wide-angle positions, such as when the lens is attached for the first time.
Adjust the viewfinder for sharpness first.

> It is easier to adjust back focus when the subject is more than 3 meters from the camera.





1. Set the Iris mode SWITCH to M. (Manual)

2. Set the Zoom mode KNOB to M. (Manual)

3. Open the Iris ring.
Adjust the illumination to obtain an optimum video level.

4. Turn the zoom lever until the lens is completely in telephoto.

5. Focus on the subject.

6. Set the lens to completely Wide-Angle.

7. Loosen the back focus ring retaining knob.

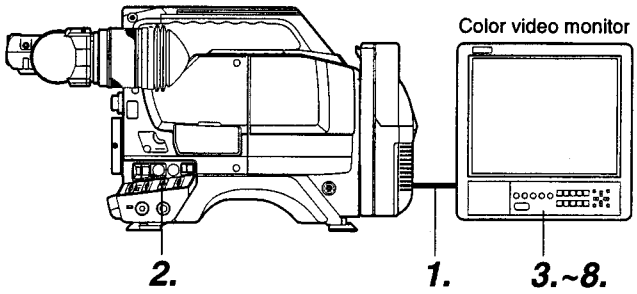
8. Adjust the back focus ring for the best possible focus.

9. Repeat steps ***4*** through ***8*** for fine adjustment.

10. Tighten the back focus ring retaining knob to secure the ring.

3-4 ADJUSTMENTS BEFORE SHOOTING (Cont'd)

EXTERNAL MONITOR ADJUSTMENT (For NTSC Model)



■ SMPTE color bars

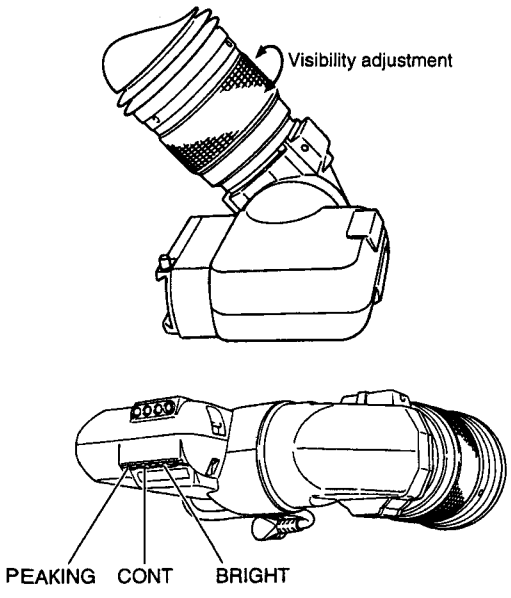
White ①	Yellow ②	Cyan ③	Green ④	Magenta ⑤	Red ⑥	Blue ⑦
Blue ⑧	Black ⑨	Magenta ⑩	Black ⑪	Cyan ⑫	Black ⑬	White ⑭
Black ⑮	White ⑯	Black ⑰	⑱	⑲	⑳	Black ㉑

The color bar screen has a configuration as shown above.
The description hereinafter refers to the positions in the color bar screen using the numbers.

Display the color bar signal built in the camera head and adjust the colors, contrast and brightness.

1. Connect a color video monitor to the MONITOR OUTPUT connector of the camera head.
2. Set the MODE switch ⑫ to COLOR BARS to output the color bar signal (SMPTE color bars).
3. Set the monitor so that the screen turns entirely blue.
4. Adjust the chroma control of the monitor so that there is no difference in brightness between ① and ⑧ or between ⑦ and ⑭ of the color bars.
5. Adjust the phase control of the monitor so that there is no difference in brightness between ③ and ⑩ or between ⑤ and ⑫ of the color bars.
6. If the phase control adjustment above causes a difference in brightness between ① and ⑧ or ⑦ and ⑭, restart from the chroma control adjustment in step 4.
7. Switch the monitor back to the standard screen (All of R, G, and B will appear).
8. Adjust the brightness by using the Brightness Adjusting control so that the color bar ⑱ and ⑲ disappears, and the color bar ⑳ becomes visible.

VIEWFINDER ADJUSTMENT



■ Visibility adjustment

Rotate the eyepiece focusing ring so that the viewfinder screen image is clearly visible.

■ Brightness and contrast adjustment

When the ambient brightness changes, the brightness and contrast of the viewfinder screen can be adjusted with the CONT and BRIGHT controls.

■ Peaking adjustment

Turning the PEAKING (contour adjustment) control makes the picture look sharper, making focus adjustment easier.

4. SHOOTING (BASIC OPERATIONS)

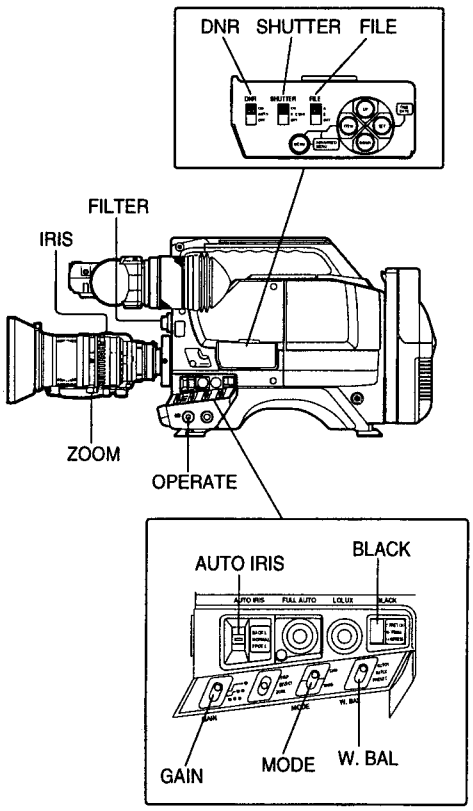
4-1 BASIC SHOOTING OPERATION

This section describes the procedure of image shooting using the automatic adjustment features of the camera.
(For performing the setup without using the automatic adjustment features, refer to Section 5.)

The basic procedure is as follows:

① Ensure that the switches of the camera are in the standard positions.
② Make preparation for shooting.
③ Perform actual recording and playback.

SWITCH SETUP

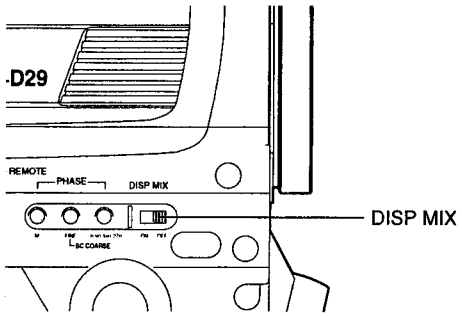


Switch	Standard Position	Details
AUTO IRIS	NORMAL	7 page, 37 page
BLACK	NORMAL	7 page, 37 page
GAIN	• position	6 page, 36 page
MODE	CAM	7 page
W.BAL	AUTO 1	7 page
DNR	OFF	8 page
SHUTTER	OFF	8 page, 17 page
FILE	OFF	8 page
ZOOM	S (Servo)	13 page
IRIS	A (Auto)	13 page
FILTER	Optimum position	See below.

■ FILTER (color temperature conversion filter)

Set the FILTER switch according to the object.

FILTER		Suitable Location
1	3200K	Indoors, dark outdoors
2	5600K	Outdoors
3	5600K + ND	Outdoors under fine weather
4	EFFECT	The cross effect filter makes the highlight sections shine like crosses and reduces the contrast. The corresponding color temperature is 3200K.

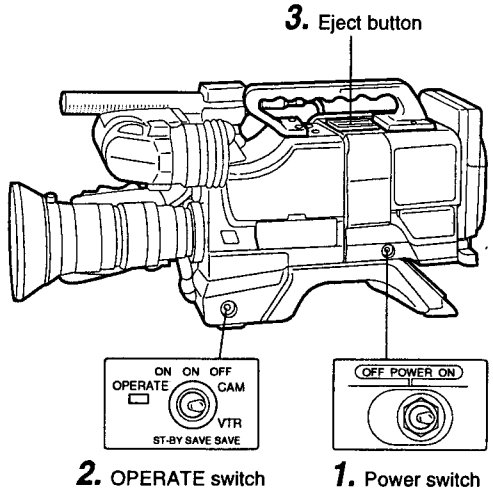


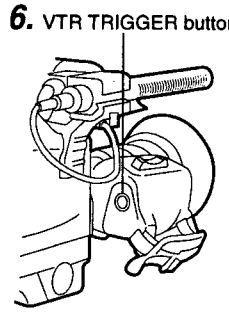
Switch	Standard Position	Details
DISP MIX	OFF	10 page

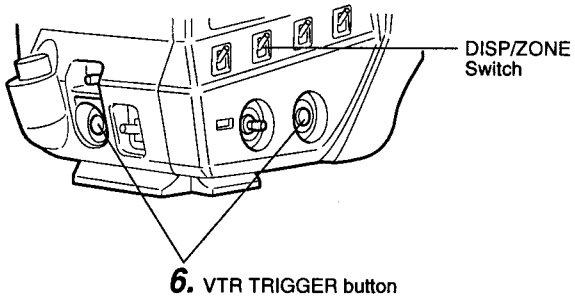
4. SHOOTING (BASIC OPERATIONS)

4-1 BASIC SHOOTING OPERATION (Cont'd)

RECORDING PROCEDURE







1. Set the power switch of the VCR to ON.

2. Set the OPERATE switch of the camera head to VTR SAVE then, in a short while, to VTR ST-BY.
The VCR is turned ON and the OPERATE indicator lights up.

3. Open the cassette cover of the VCR by pressing its eject button, load a video cassette tape correctly and close the cassette cover gently.
When the cassette cover is closed, the tape is loaded and the VCR enters the record-pause mode.

CAUTION :

With the BR-S422, when the record-pause mode lasts for more than 30 minutes, the cylinder stops rotation to protect the tape and video heads and the OPERATE indicator of the VCR blinks.
To return to the record-pause mode, press the VTR trigger button of the camera head twice; the OPERATE indicator will stop blinking and remain lit.
When the VTR trigger button is pressed only once, the recording will begin in 8 to 10 seconds.

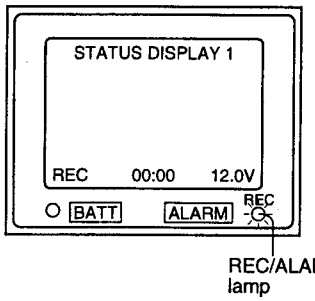
4. Check the setup of the switches.

5. Point the camera toward the object and adjust the focus and zoom.

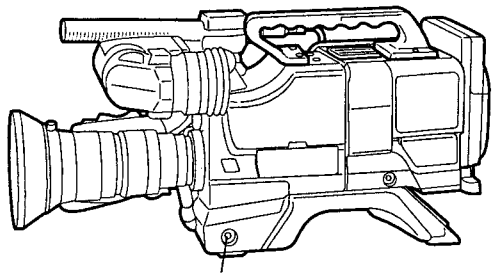
6. Start recording by pressing any of the following VTR trigger buttons.

- Camcorder-type operation : VTR trigger button of the zoom lens.
- Tripod operation : VTR trigger button of the camera head.
- Portable VCR system : VTR trigger button of the camera head.

Here, the REC/ALARM lamp on the viewfinder will light up. Also, pushing upward the DISPLAY/ZONE switch on the camera and selecting the Status Mode 1 will display "REC" in the viewfinder.



4-1 BASIC SHOOTING OPERATION (Cont'd)

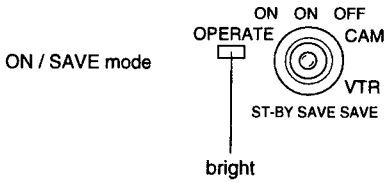


7. Press the VTR trigger button of the camera head again to put the VCR in the record-pause mode.
The REC/ALARM lamp then turns off and the status display message on the viewfinder screen changes to "ST-BY".

8. To end recording, set the OPERATE switch of the camera head to OFF/SAVE and the power switch of the VCR to OFF.

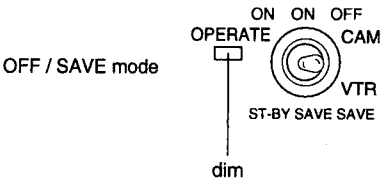
POWER-SAVE MODE

The battery power can be saved by turning the VCR from the record-pause mode to power-save mode.



■ When the OPERATE switch of the camera head is set to ON/SAVE:
The VCR enters the power-save mode while the camera power is ON. With this position, the image shot by the camera can be monitored on the viewfinder screen.
When the VTR trigger button is pressed, the VCR will be changed from the SAVE mode to the ST-BY mode to start recording.

CAUTION :
It will take a short time because the recording starts from the stop condition of the head drum. Also a position between the recorded sections may be occupied.



■ When the OPERATE switch of the camera head is set to OFF/SAVE:
Both the camera and VCR enter the power-save mode. With this position, the image shot by the camera cannot be monitored on the viewfinder screen.

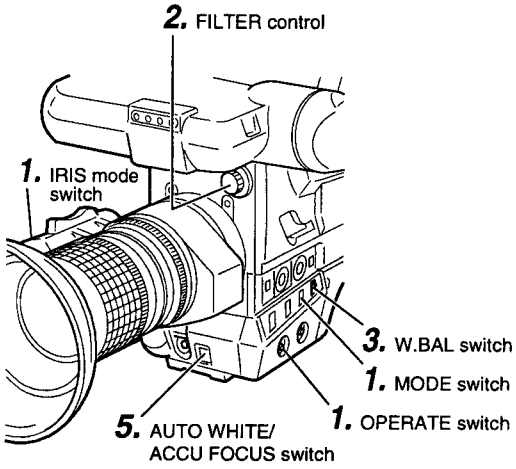
In the SAVE mode of the VCR, the tape is left loaded around the heads.
In the ST-BY mode of the VCR, the heads and cylinder are rotating.

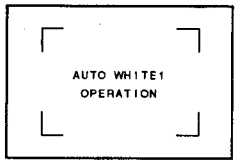
Note :
The VCR conditions corresponding to ON/SAVE and ON/ST-BY are variable depending on the VCR.

4-2 WHITE BALANCE ADJUSTMENT

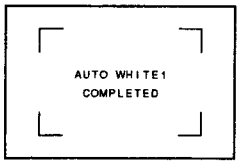
Since the color of light (color temperature) is variable depending on the light source, it is required to re-adjust the while balance when the main light source illuminating the object changes.

WHITE BALANCE ADJUSTMENT

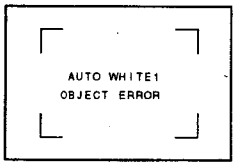




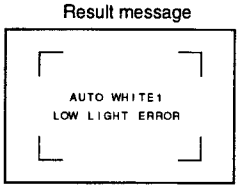
During operation



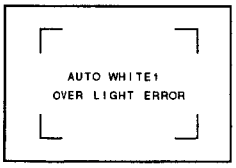
Result message



Object error



Low light error



Over-light error

Two kinds of white balance adjustment results can be stored in memories AUTO 1 and AUTO 2.

■ Adjustment procedure

1. Set the following switches.
   - OPERATE switch of the camera head to ON/SAVE.
   - MODE switch of the camera head to CAM (camera).
   - IRIS mode switch of the lens to A (Auto).
2. Set the FILTER control according to the current lighting.
3. Set the W.BAL switch to AUTO 1 or AUTO 2.
4. Place a white object under the same lighting condition as the shooting object and zoom in to fill the screen with white.
5. Tilt the AUTO WHITE/ACCU FOCUS switch upward (to AUTO WHITE) once and release it.
   - "OPERATION" is displayed on the viewfinder screen during the operation of the auto white balance adjustment circuit.
   - "COMPLETED" is displayed when the white balance has been adjusted properly.

[Error messages]

- OBJECT ERROR
  Displayed when there is not enough white color on an object or the color temperature is not suitable.
- LOW LIGHT ERROR
  Displayed when the light is low. Increase the lighting illuminationthen re-adjust the white balance.
- OVER LIGHT ERROR
  Displayed when the light is excessively bright. Decrease the lighting illumination then re-adjust the white balance.

FULL-TIME AUTO WHITE BALANCE (FAW)

The FAW function adjusts the white balance value automatically as the lighting condition changes.
This mode is convenient when you have no time to adjust the white balance or when the camera is moved frequently in and out of places under different lighting conditions.

■ Setting procedure

The FAW function can be activated with item "FAW" on the Advanced Menu.
This item allows setting of the FAW function to one of the white balance switches, AUTO1, AUTO2 or PRESET. Select "NONE" if the FAW function is not required.
Reference: Page 42.

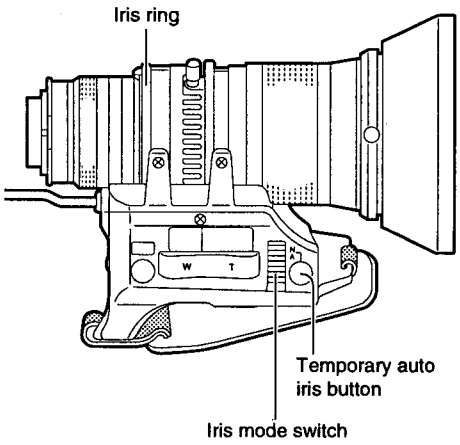
CAUTION :

The FAW(Full-time Auto White balance) function cannot provide optimum white balance with an object outside the FAW adjustment range, for example when it contains only a single color or not enough white color.

5. SHOOTING (APPLIED OPERATIONS)

5-1 IRIS (BRIGHTNESS) ADJUSTMENT

LENS IRIS ADJUSTMENT



The lens iris can be adjusted by any of the following three methods.

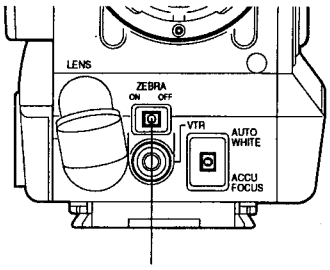
- Automatic adjustment
  Set the iris mode switch to "A (Auto)".
  The iris is adjusted automatically according to the brightness of the object.
- Manual adjustment
  Set the iris mode switch to "M (Manual)".
  The iris can be adjusted manually by rotating the iris ring.
- Temporary auto iris adjustment
  When this button is pressed during manual iris adjustment, the auto iris adjustment mode is activated only while this button is held depressed.

■ Changing the auto iris adjustment setup

Under special lighting conditions such as back-light condition, it is often suitable to change the value set by the auto iris adjustment.
This can be done by any of the following methods.

- Setting the AUTO IRIS LEVEL switch of the camera head (See page 37.)
- Setting item "IRIS" in the Main menu screen. (See page 39.)

ZEBRA PATTERN DISPLAY DURING MANUAL ADJUSTMENT



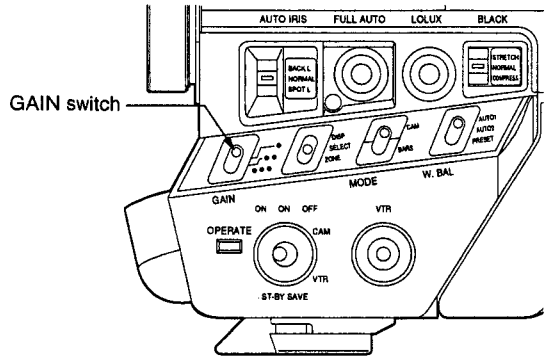
By setting the ZEBRA switch to ON, oblique stripes (zebra pattern) can be displayed in the sections with signal levels of 70% to 80% on the viewfinder screen.
The zebra pattern can be used as a reference for manual iris adjustment.
When adjusting the iris manually, adjust it so that the zebra patterns are displayed in the section which you want to stress in the object.

- The initial setting is 70 to 80%. However, with the "ZEBRA" setting on the ADVANCE MENU, zebra patterns can be displayed in the section of over 100% in brightness level. (See page 43)

5-2 GAIN (SENSITIVITY) ADJUSTMENT

The gain should be switched when the brightness is not enough due to the poor lighting condition.

GAIN SWITCHING



This switch allows the gain to be boostedwhen the illumination of the object is insufficient.

Switch Position	Factory-Set Gain
•	0 dB
••	9 dB
•••	18 dB

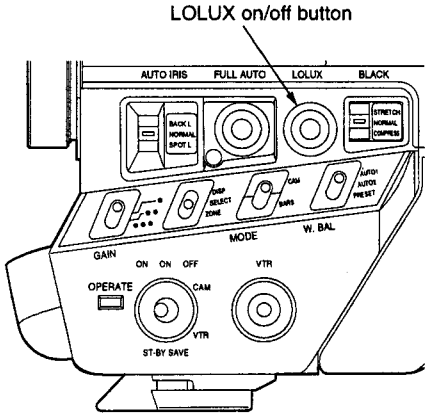
When this switch is switched, the newly set gain is displayed for a few seconds on the status 0 or mode 1 screen inside the viewfinder. Set it to • (0 dB) in normal use.

■ The gain set with each of the switch positions can be set with "GAIN" of the ADVANCED MENU.
Reference : See page 42 for details.

■ It is also possible to use the ALC which varies the gain automatically.
Reference : See page 42 for details.

■ Smooth gain transition
The gain transition can be made smoother using "SMOOTH TRANS" of the ADVANCED MENU.
However, note that the SMOOTH TRANS function is not available if the switch is set to ALC.

GAIN BOOST UNDER LOLUX CONDITION



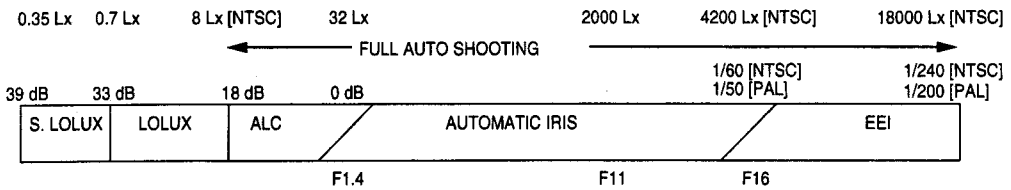
The LOLUX on/off button is designed to be used when an illumination insufficient cannot be compensated for with the GAIN switch alone. Press the button to enter the LOLUX mode in which the gain is boosted by about 33 dB.
"LOLUX ON" is displayed for a few seconds on the status 0 or 1 mode screen inside the viewfinder.
Pressing the button again cancels the LOLUX mode.
"LOLUX OFF" is displayed for a few seconds.

■ Switching to SUPER LOLUX boost
The LOLUX boost value can be changed to the SUPER LOLUX value by using the ADVANCED MENU.
The gain boost of SUPER LOLUX is about 39 dB. However, when the SUPER LOLUX function is on, the after-image will increase.
• Shutter speed cannot be changed while the SUPER LOLUX mode is ON.
Reference: Page 42.

■ Even in the SMOOTH TRAINS mode, the switching between LOLUX and SUPER LOLUX is not achieved smoothly.

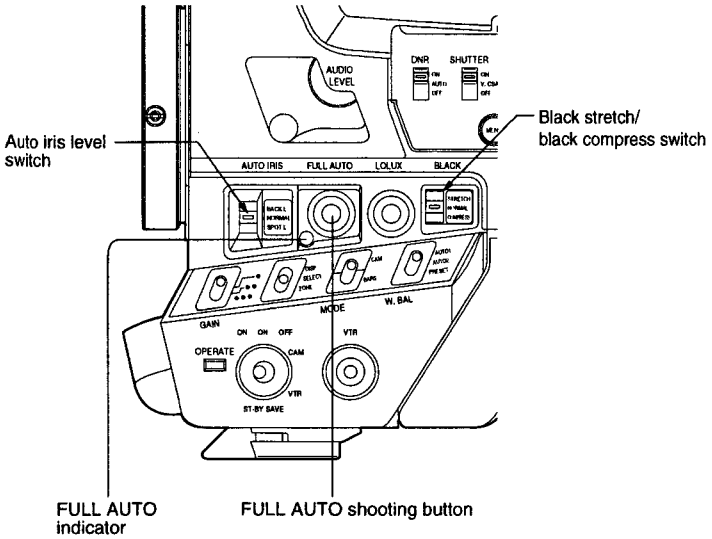
■ When the LOLUX or SUPER LOLUX is in use, the image definition on the screen will degrade to increase residual images, but it is not an indication of afailure.

[Relationship between gain, iris and shutter]



5-3 SWITCH SETUP ACCORDING TO ILLUMINATION AND OBJECT

SWITCH FUNCTIONS



AUTO IRIS LEVEL switch

This switch allows changing of the reference value for the auto iris adjustment according to the lighting condition.

BACK. L : When the object is in the back-light condition. Sets the Auto Iris reference value to a value which is about 1 step wider than the standard setting.

NORMAL : Normal lighting condition.

SPOT. L : When the object is under a spotlight. Sets the Auto Iris reference value to a value which is about 1 step narrower than the standard setting.

BLACK stretch/black compress switch

On the black screen, this switch makes the image easier to see by varying the black gain.

BLACK STRETCH : Boosts the black gain to improve the reproducibility of black color.

NORMAL : Normal black gain.

BLACK COMPRESS : Attenuates the black gain to make the image sharper.

FULL AUTO SHOOTING (FAS) FUNCTION

The FAS function provides a wide range of compatibility with shooting conditions which varies as you move between indoors and outdoors or between bright and dark locations. It is not necessary to change the switch and filter positions every time you move. The FAS function provides an integrated control of the ALC (Automatic Level Control), Auto iris and FAW (Full-time Auto White balance) functions.

■ Operation

1. Simply press the FULL AUTO button to enter the FAS mode, in which the FULL AUTO indicator lights and "FAS" is displayed on the right of the viewfinder screen.

2. Pressing the FULL AUTO button again cancels the FAS mode and turns the FULL AUTO indicator off.

■ Automatic setting contents

- If you have been displaying the color bars, the screen is switched automatically to the camera image.
- The auto iris adjustment mode is entered even if the iris mode switch of the lens is set to Manual.
- The GAIN switch and W.BAL switch settings are defeated in the FAS mode.
- The LOLUX button setting is active even in the FAS mode. However, the ALC and EEI are defeated in the LOLUX mode, in which only the auto iris adjustment and FAW are used.
- All of the previous setting contents are recalled when the FAS mode is canceled.
- The SMOOTH TRANS function is defeated during switching by the FAS function.

5-4 MENU SCREENS

FLOW OF MENU SCREENS

The menu screen appears in the viewfinder. It also appears in the MONITOR OUTPUT when the DISP MIX switch ㊱ is set to "ON".
The camera incorporates two series of menu screens, the [MAIN MENU] menus and [ADVANCED MENU].

■ [MAIN MENU]

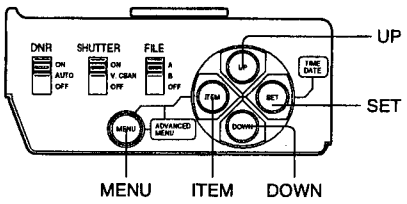
- [ACCM REC TIME RESET] Resets the ACCUmulated recording time of the tape.
- [MENU] Includes convenient functions for use in recording, for example the detail enhancement function.
- [CLOCK SET] sets the date and time and changes their displays.

■ [ADVANCED MENU]

- [OPERATION] Used to change the factory-set values for the zebra pattern display, gain, etc.
- [PROCESS] Used to fine-adjust the gamma characteristic, etc. of the camera input signal.
- [SCENE FILE] Used to register the set values.

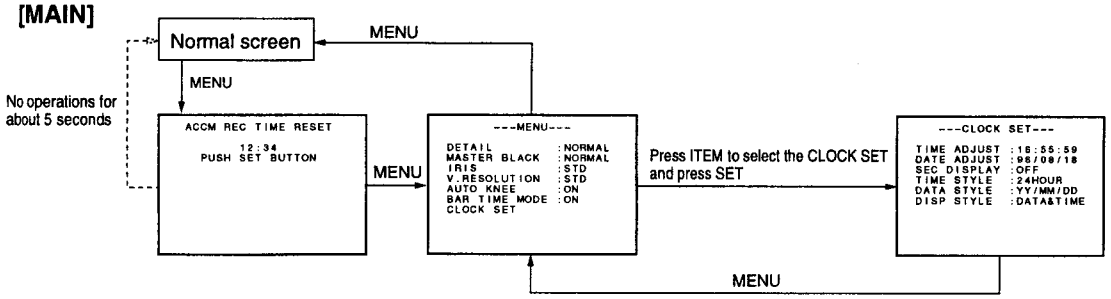
Note :

If you use the MONITOR OUTPUT as the backup signal output, set the DISP MIX switch to OFF so that characters are not output to the recorder.

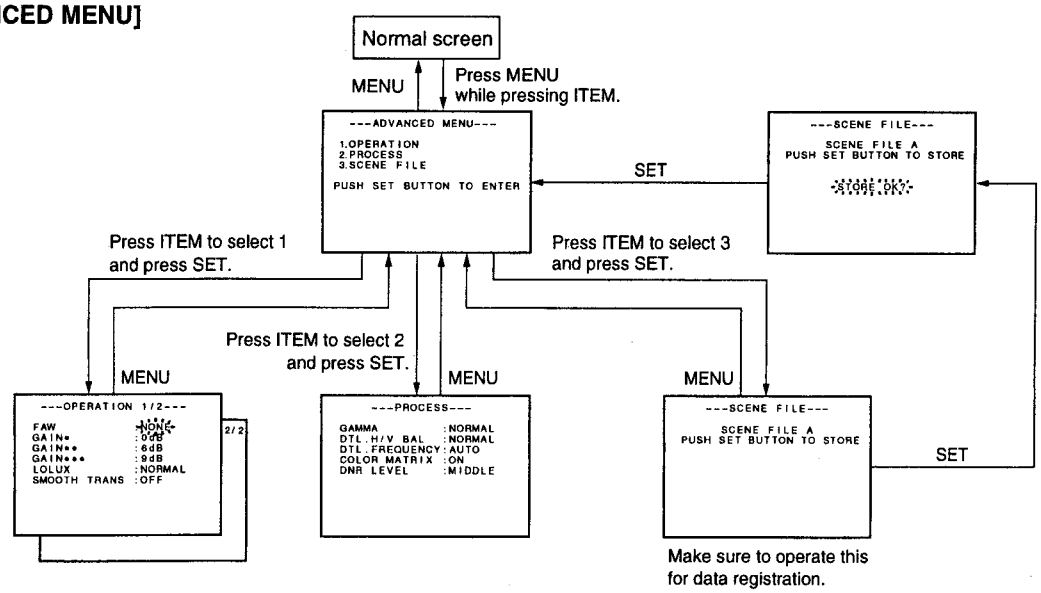


Operation Button	Function
MENU	Press to display a menu screen, etc.
ITEM	Press to move the cursor or an item on the menu screen.
UP/DOWN	Press to select the setting values on the menu screen.
SET (TIME DATE)	Press to enter the set value in memory.

[MAIN]

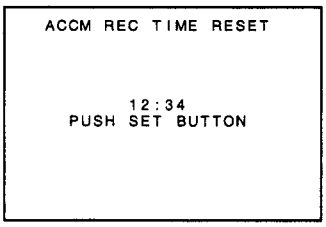


[ADVANCED MENU]



5-4 MENU SCREENS (Cont'd)

RESETTING THE ACCUMULATED RECORDING TIME (ACCM REC TIME RESET)



<Setting procedure>

1. From the normal screen, press the MENU button to display the "ACCM REC TIME RESET" screen on the viewfinder. If the DISP MIX switch ㊱ is ON, it will be displayed on the MONITOR OUTPUT.
2. Press the SET button; the ACCUmulated recording time is reset to "00:00" and the normal screen returns.
   Even if the SE button is not pressed, the normal screen is displayed again in about 5 seconds.

SETTING THE MAIN MENU SCREEN

<Setting procedure>

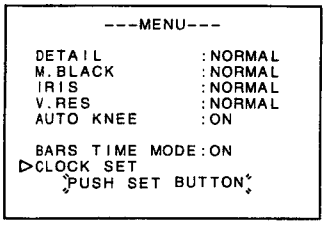
1. Press the MENU button twice while the normal screen is displayed (or press the MENU button once while "ACCM REC TIME RESET" screen is displayed) to display the "MENU" screen on the viewfinder. If the DISP MIX switch ㊱ is ON, it will be displayed on the MONITOR OUTPUT.
2. Press the ITEM button to move the cursor (▷) downward till the item to be set is reached.
3. Press the UP/DOWN button to select the desired value.
4. Press the MENU button to enter the set values and return to the normal screen.

Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
DETAIL	---MENU--- ▷DETAIL :NORMAL MASTER BLACK :NORMAL IRIS :NORMAL V.RESOLUTION :NORMAL AUTO KNEE :ON BARS TIME MODE:ON CLOCK SET	Adjusts the detail enhancement level. • To sharpen details .... Increase the number (UP). • To soften details ..... Decrease the number (DOWN).	MAX 6 15 step to NORMAL to –6 MIN	NORMAL
M.BLACK	---MENU--- DETAIL :NORMAL ▷MASTER BLACK :NORMAL IRIS :NORMAL V.RESOLUTION :NORMAL AUTO KNEE :ON BARS TIME MODE:ON CLOCK SET	Adjusts the pedestal level (master black) which is the reference of black. • To increase the pedestal level ..... Increase the number (UP). • To decrease the pedestal level .... Decrease the number (DOWN).	MAX 9 21 step to NORMAL (0) to –9 MIN (–10)	NORMAL
IRIS	---MENU--- DETAIL :NORMAL MASTER BLACK :NORMAL ▷IRIS :NORMAL V.RESOLUTION :NORMAL AUTO KNEE :ON SKIN TON DTL :OFF BAR TIME MODE :ON CLOCK SET	Changes the setting value of the detecting level in the auto iris mode. • PEAK..... Detects the peak level of brightness • NORMAL... Detects normal level • AVG ..... Detects the average level of brightness	PEAK NORMAL AVG	NORMAL
V.RES	---MENU--- DETAIL :NORMAL MASTER BLACK :NORMAL IRIS :NORMAL ▷V.RESOLUTION :NORMAL AUTO KNEE :ON BARS TIME MODE:ON CLOCK SET	Increases the vertical resolution. • NORMAL... Vertical resolution 380 lines. • V.PLUS ..... Vertical resolution 420 lines. Residual images may increase. • V.MAX..... Vertical resolution 450 lines. The sensitivity is degraded and the bright section may be coloured depending on the objects.	NORMAL V. PLUS V. MAX	NORMAL

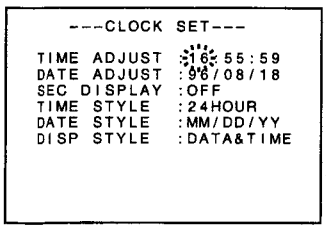
5-4 MENU SCREENS (Cont'd)

Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
AUTO KNEE	---MENU--- DETAIL :NORMAL MASTER BLACK :NORMAL IRIS :NORMAL V.RESOLUTION :NORMAL ▷AUTO KNEE :ON BARS TIME MODE:ON CLOCK SET	Selects whether the auto knee point is varied depending on the input signal. • ON ..... Varied depending on the input signal • OFF ... Not varied depending on the input signal	ON OFF	ON
BARS TIME MODE	---MENU--- DETAIL :NORMAL MASTER BLACK :NORMAL IRIS :NORMAL V.RESOLUTION :NORMAL AUTO KNEE :ON ▷BARS TIME MODE:ON CLOCK SET	Sets whether the time is displayed together with color bars. • ON ..... Displays the time with color bars. During the color bar mode on the ordinary screen, the date/time display can not be changed with the SET (TIME/DATE) button. • OFF ... Does not display the time with color bars. During the color bar mode on the ordinary screen, the date/time display can be changed with the SET (TIME/DATE) button as for the setting in the camera mode.	ON OFF	ON

SETTING THE DATE AND TIME



MENU screen



CLOCK SET screen

The date and time display can be changed with the timer function built into this unit.

<How to set>

1. Press the MENU button twice at the normal screen (or press the MENU button once at the ACCM REC TIME RESET screen) and the MENU screen will be displayed on the viewfinder screen.
2. Press the ITEM button to move a cursor (▷) to the CLOCK SET. "PUSH SET BUTTON" starts blinking.
3. When the SET button is pressed, the CLOCK SET screen will be displayed and the time section of the TIME ADJUST starts blinking.
4. Press the ITEM button to move the blinking light to the item to be changed. (Each time the ITEM button is pressed, the blinking light moves as following order. hour→minute→month→day→year→SEC. DISPLAY→TIME STYLE→DATE STYLE→DISP STYLE)
5. The value of each item can be changed with the UP and DOWN button.
6. Repeat the procedure *4* to *5* for all required items.
7. Press the MENU button twice to go back to the normal screen.

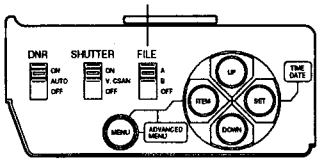
■ The setting and correction of the following items can be done at the CLOCK SET screen.

- TIME ADJUST (To change times)
  Correction of hours, minutes and seconds.
- DATE ADJUST (To change the dates)
  Correction of year, month and date.
- SEC DISPLAY (To change seconds)
  ON : Display seconds
  OFF : Not display seconds
- TIME STYLE (To change the time display mode)
  24 HOUR : 24-hours display (ex. 16:55:59)
  12 HOUR : 12-hour display (ex. 4:55:59 PM)
- DATE STYLE (To change date display)
  YY/MM/DD : Year/Month/Day
  DD/MM/YY : Day/Month/Year
  MM/DD/YY : Month/Day/Year
- DISP STYLE (Select the contents to be displayed.)
  DATE & TIME: Displays date and time.
  DATE: Displays date only.
  TIME: Displays time only.

5-4 MENU SCREENS (Cont'd)

SETTING THE ADVANCED MENU SCREEN

File




```
---ADVANCED MENU---

        SCENE FILE A
▷1:OPERATION
 2:PROCESS
 3:SCENE FILE

PUSH SET BUTTON TO ENTER
```

ADVANCED MENU screen

```
---OPERATION 1/2---

        SCENE FILE A
FAW              :NONE
GAIN•            :0dB
GAIN••           :6dB
GAIN•••          :9dB
LOLUX            :NORMAL
SMOOTH TRANS     :OFF
```

Selection screen
(Example with OPERATION 1/2)

```
---SCENE FILE---

SCENE FILE A
PUSH SET BUTTON TO STORE

STORE OK?
```

SCENE FILE screen
(Example with FILE A)

```
---SCENE FILE---

SCENE FILE OFF
PUSH SET BUTTON
```

SCENE FILE screen
(Example with FILE OFF)

<Setting procedure>

1. Set the FILE switch ⑬ to the desired FILE A or FILE B. The registered set value will be maintained in the memory after switching the power off.

2. From the normal screen, press the MENU button while pressing the ITEM button. The "ADVANCED MENU" screen is displayed in the viewfinder.

3. Select "1. OPERATION" or "2. PROCESS" with the ITEM button.

4. Press the SET button to display the selected screen.

5. Select the desired item with the ITEM button. (The selected item blinks.)

6. Select the setting value of each item with the UP or DOWN button.

7. After setting, press the MENU button to display the "ADVANCED MENU" screen.

8. Select 3.SCENE FILE with the ITEM button and press the SET button.
To abandon the registration at the SCENE FILE screen, press the MENU button to return to the ADVANCED MENU screen. The altered set value will not be registered at this stage, however, it is valid till the power is off.

9. After selecting the FILE, press the SET button twice to enter the set values in the memory and return to the "ADVANCED MENU" screen.
Pressing the SET button once will display a message "STORE OK?". When you press the button again, the settings made will be registered to FILE.

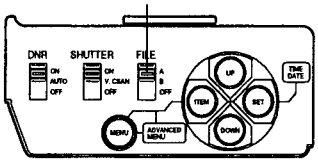
CAUTION :

- If the FILE switch is set to OFF, the registration will not be carried out even if the SET button is pressed. Press the SET button to return to the ADVANCED MENU screen.
- The values set while the FILE switch is in the OFF position are not registered but remain valid until the power is switched OFF.

10. Press the MENU button at the advanced menu screen to return to the normal screen.

EXECUTING THE OPERATION/PROCESS MENU FILES

File select switch



The OPERATION menu items and the PROCESS menu items are stored in FILE A or FILE B. To shoot image using the conditions which have been entered in a file, select the file using the File switch.

FILE A : Shooting with the conditions stored in FILE A.
FILE B : Shooting with the conditions stored in FILE B.
OFF : Shooting with the factory-set conditions.

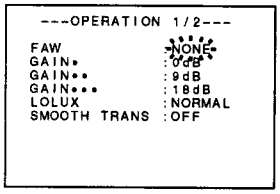
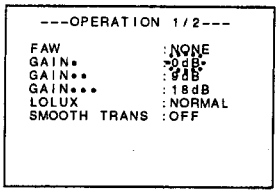
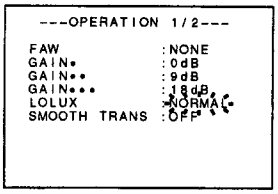
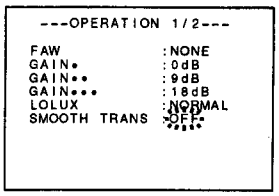
5. SHOOTING (APPLIED OPERATIONS)

5-4 MENU SCREENS (Cont'd)

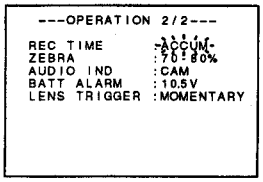
OPERATION (1/2) SCREEN

This screen allows changing of the set values of the built-in functions of the camera including the GAIN, LOLUX and ZEBRA pattern functions.

1. Each time the ITEM button is pressed, a blink on the set items moves downwards one by one.
2. To switch from the OPERATION (1/2) to (2/2), press the ITEM button at "SMOOTH TRANS".
3. To switch from the OPERATION (2/2) to (1/2), press the ITEM button at "LENS TRIGGER".
4. Press the UP/DOWN button in order to change the settings.
5. When the settings are completed, press the MENU button to return to the ADVANCED MENU screen.
6. Use the ITEM button to select "3 SCENE FILE", and press the SET button to registor the set value in the FILE A or FILE B.

Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
FAW		Selects the position of the W.BAL switch ⓫ where the FAW (Full-time Auto White balance adjustment) function is to be assigned. NONE ..... FAW function is not used. AUTO 1 .. FAW is assigned to the AUTO 1 position. AUTO 2 .. FAW is assigned to the AUTO 2 position. PRESET .. FAW is assigned to the PRESET position.	NONE AUTO1 AUTO2 PRESET See page 34 for the FAW function.	NONE
GAIN • GAIN •• GAIN •••		Assigns gain values to each position of the GAIN switch ❽. GAIN • ..... Assigns a gain value for the GAIN • position. GAIN •• ..... Assigns a gain value for the GAIN •• position. GAIN ••• ... Assigns a gain value for the GAIN ••• position. –3 dB, 0 dB, 6 dB, 9 dB, 12 dB, 18 dB, ALC (Auto gain Level Control)	–3dB 0dB 6dB 9dB 12dB 18dB ALC (Auto gain level control) See page 36 for the ALC function. *The resolution may be degraded when it is set to 18 dB.	GAIN •0dB GAIN ••9dB GAIN •••18dB
LOLUX		Sets the LOLUX values to be activated with the LOLUX button ❾. NORMAL .... Normal LOLUX value (33 dB gain boost). SUPER ..... Super LOLUX value (39 dB gain boost).	NORMAL SUPER	NORMAL
SMOOTH TRANS		Smoothens the transition when the GAIN switch ❹, or W.BAL switch ⓫ is switched over and achieves gradual change in place of sudden change. ON ..... Activates the smooth transition function. OFF ... Deactivates the smooth transition function. The SMOOTH TRANS function is defeated during switching of the LoLux and FAS buttons as well as during switching of the GAIN switch which is assigned to ALC.	ON OFF	OFF

OPERATION (2/2) SCREEN

Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
REC TIME		Sets either the remaining tape recording time or the accumulated recording time to be displayed on the viewfinder screen. ACCM..... accumulated recording time display REMAIN .... Remaining time display	ACCUM REMAIN	ACCUM

5-4 MENU SCREENS (Cont'd)

Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
ZEBRA	---OPERATION 2/2--- REC TIME :ACCUM ZEBRA :70-80% AUDIO IND :CAM BATT ALARM :10.5V LENS TRIGGER :MOMENTARY	Switches the brightness level of the object section where the zebra pattern is displayed. 70-80% ..... Zebra pattern is displayed in sections with brightness levels between 70% and 80%. OVER 100% ... Zebra pattern is displayed in sections with brightness levels over 100%.	70%–80%, OVER100%	70–80%
AUDIO IND	---OPERATION 2/2--- REC TIME :ACCUM ZEBRA :70-80% AUDIO IND :CAM BATT ALARM :10.5V LENS TRIGGER :MOMENTARY	It changes audio indicator source to be displayed in the viewfinder. CAM : Displays the volume level of the MIC connected to a camera. VTR : Displays the volume level of the sound returned from the VCR.	CAM VTR	CAM
BATT ALARM	---OPERATION 2/2--- REC TIME :ACCUM ZEBRA :70-80% AUDIO IND :CAM BATT ALARM :10.5V LENS TRIGGER :MOMENTARY	Sets the voltage at which the battery alarm starts to be displayed on the viewfinder screen.	10.5 to 13.5 V 7 stages in 0.5 V steps	10.5V
LENS TRIGGER	---OPERATION 2/2--- REC TIME :ACCUM ZEBRA :70-80% AUDIO IND :CAM BATT ALARM :10.5V LENS TRIGGER :MOMENTARY	Changes the lens trigger setting according to the lens in use. MOMENTARY ..... Compatible with momentary (non-lock type) triggering. Mainly used with lenses using the 12-pin connector. ALTERNATE ..... Compatible with alternate (lock type) triggering. Mainly used with lenses using the 8-pin connector.	MOMENTARY ALTERNATE	MOMENTARY

PROCESS SCREEN

1. The set values can be changed with the UP or DOWN button.
2. After setting,, press the MENU button to return to the ADVANCED MENU screen.
3. Use the ITEM button to select "3 SCENE FILE", and press the SET button to register the set value in the FILE A or FILE B.

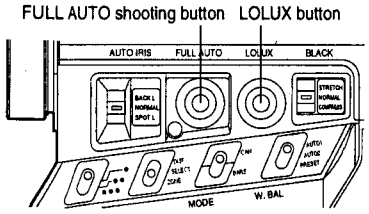
Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
GAMMA	---PROCESS--- GAMMA :NORMAL DTL.V/H BAL :NORMAL DTL.FREQUENCY :AUTO COLOR MATRIX :ON DNR LEVEL :MIDDLE	Correction of the gamma curve to decide the replay ability of black color. • To enhance the black color replayed However, halftones will be lost for white section ..... Increase the number (UP) • To attenuate the black color replayed ..... Decrease the number (DOWN)	MAX (8) 7 15 step to +OFF NORMAL (0) to –5 MIN (–6) OFF	NORMAL

5. SHOOTING (APPLIED OPERATIONS)

5-4 MENU SCREEN (Cont'd)

Item	Displayed Screen	Function, Operation	Variation Range	Initial Setting
DTL. V/H BAL	---PROCESS--- GAMMA :NORMAL DTL.V/H BAL :NORMAL DTL.FREQUENCY:AUTO COLOR MATRIX :ON DNR LEVEL :MIDDLE	Sets the direction, horizontal (H) or vertical (V), in which stronger detail enhancement is applied. • To strengthen the H enhancement ..... Increase the number (UP). • To strengthen the V enhancement ..... Decrease the number (DOWN).	V-MAX (4) 3 to 8 step NORMAL (0) to –2 V-HIN (–3)	NORMAL
DTL. FREQUENCY	---PROCESS--- GAMMA :NORMAL DTL.V/H BAL :NORMAL DTL.FREQUENCY:AUTO COLOR MATRIX :ON DNR LEVEL :MIDDLE	Varies the detail enhancement level by changing the detail enhancement frequency. • AUTO.... Auto-set through zoom. • HIGH..... Applies strong detail enhancement. Used to shoot subjects with fine patterns. • MIDDLE ... Applies medium detail enhancement. • LOW ..... Applies weak detail enhancement. Used to shoot subjects with large patterns.	AUTO HIGH MIDDLE LOW	AUTO
COLOR MATRIX	---PROCESS--- GAMMA :NORMAL DTL.V/H BAL :NORMAL DTL.FREQUENCY:AUTO COLOR MATRIX :ON DNR LEVEL :MIDDLE	Sets the color matrix5 • OFF .... Deactivates the color matrix function • ON ..... The color replayed is enhanced, but noise increases.	ON OFF	ON
DNR LEVEL	---PROCESS--- GAMMA :NORMAL DTL.V/H BAL :NORMAL DTL.FREQUENCY:AUTO COLOR MATRIX :ON DNR LEVEL :MIDDLE	Sets the DNR (Digital Noise Reduction) effect level • HIGH..... Streng thens the DNR effect, however the after-image will increase • MIDDLE ... Midium level • HIGH..... Weakens the DNR effect. (Useful when shooting a quickly moving object.)	HIGH MIDDLE LOW	MIDDLE

RESETTING THE FILE



The data registered in FILE A or FILE B is returned to the initial values.

To return FILE A to its initial value:
Power up the camera while holding down the FULL AUTO shooting button.

To return FILE B to its initial value:
Power up the camera while holding down the LOLUX button.

SYSTEM RESET

The System Reset allows the resetting of the functions and levels set on the MENU screen to the initial values, as well as the functions listed below.

<Setting procedure>

While holding the SET button of the camera head depressed, set the OPERATE switch to turn the power ON.

<Items which are reset>

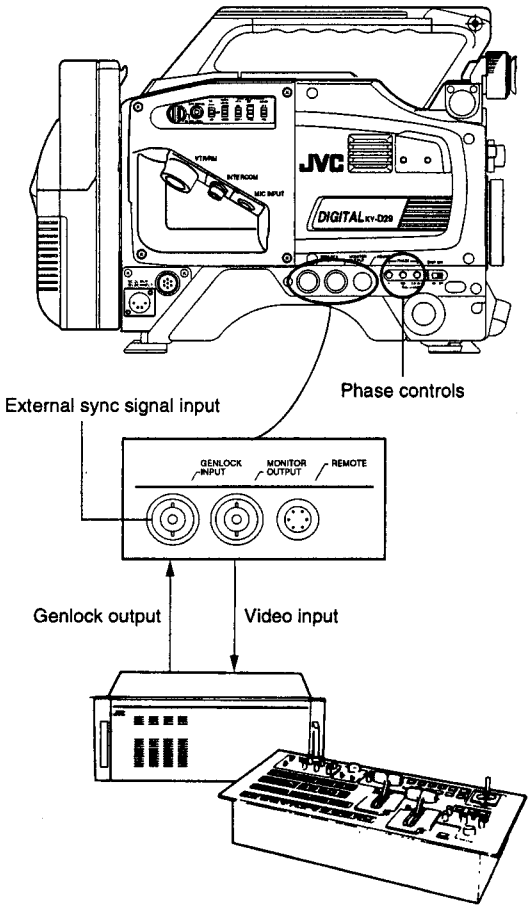
- MAIN MENU screen
  Reference Page 39: "Initial Values of MAIN MENU Screen"
- CLOCK SET screen
  - TIME ADJUST, DATE ADJUST: The time and date data which has been set is not reset.
  - SEC DISPLAY : OFF.
  - TIME STYLE : 24HOUR.
  - DATE STYLE : MM/DD/YY (Month/Day/Year)
  - DISPLAY STYLE : DATE & TIME (Both date/time displayed)
- ADVANCED MENU screen
  The data of both FILE A and FILE B is reset to the initial values.
  Reference Pages 42-44: "Initial Values of ADVANCED MENU Screen"
- Other initial values

Function	Initial Value
SHUTTER	1/100 (NTSC),1/120 (PAL)
DISP STATUS	Status 0
Safety zone	Mode 0 (OFF)
LoLux	OFF
FAS	OFF
V.SCAN	1/100.2 (NTSC), 1/120.1 (PAL)
Date/time	OFF (Not displayed)

- The memories related to the switches which are set in the mechanical positions and the Auto White Balance memory are not reset.

6. SYSTEM UPGRADING

6-1 CONNECTION WITH A SWITCHER



Genlocking is a function which synchronizes the video output signal of the camera with another component including a camera and switcher. The phases of the camera signal can be adjusted relatively with reference to the black burst or composite video signal. The camera is genlocked through the sync signal input connector ㉛ or the remote control unit.

• Phase adjustment

Two phase controls are provided for use in adjusting the horizontal and the color phases.

H : Horizontal sync phase control for use in adjusting the H phase so that the reference signal and the video output signals are coincident in terms of position and time on the screen.

SC COARSE : A rough adjustment of the sub carrier (SC) can be made while observing a vector scope. (0°,90°, 180°, 270°)

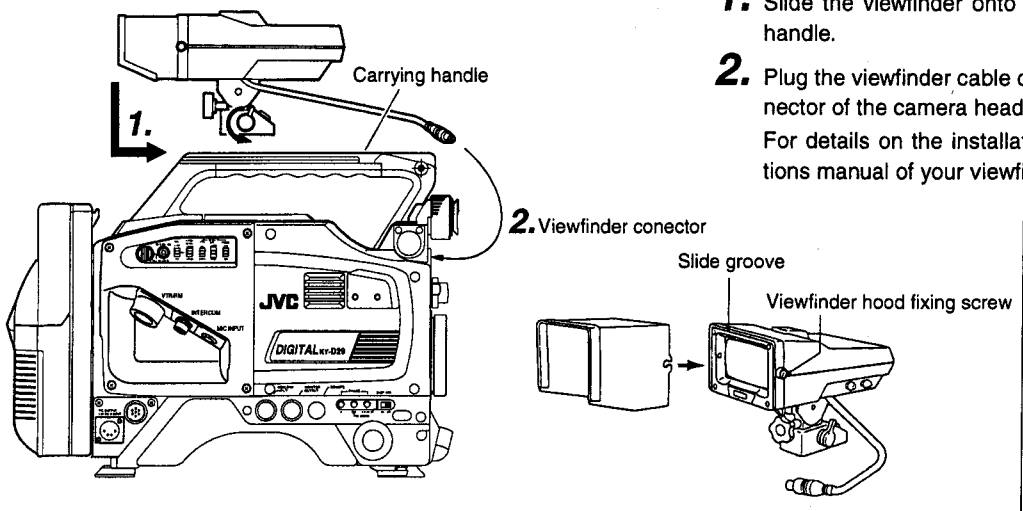
SC FINE : A fine adjustment can be made.
If sufficient adjustment cannot be made, switch the SC COARSE and try the SC FINE adjustment again.

- The adjustments require the use of external measuring instruments such as a waveform monitor, oscilloscope and vector scope.
  As the signal phase is unstable for a moment after the power of each piece of equipment is turned on, wait a while before starting the phase adjustment.

CAUTION :

The camera cannot be genlocked with a VCR playback signal because this may cause a sync error or color phase variation. However, this is not a malfunction but due to the timebase variation in the VCR playback signal that corresponds to the wow and flutter of the audio tape playback signal. If you should use the VCR playback signal as the reference signal, be sure to correct the signal using a timebase corrector or similar equipment.

6-2 CONNECTION WITH THE STUDIO-USE VIEWFINDER (VF-P400)



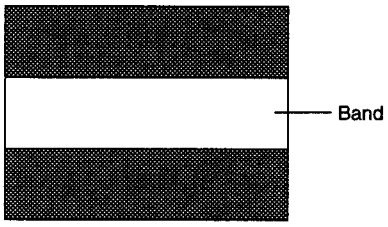
A studio viewfinder can be installed on the carrying handle.

1. Slide the viewfinder onto the slide bracket of the carrying handle.
2. Plug the viewfinder cable connector into the viewfinder connector of the camera head.
   For details on the installation method, refer to the instructions manual of your viewfinder.

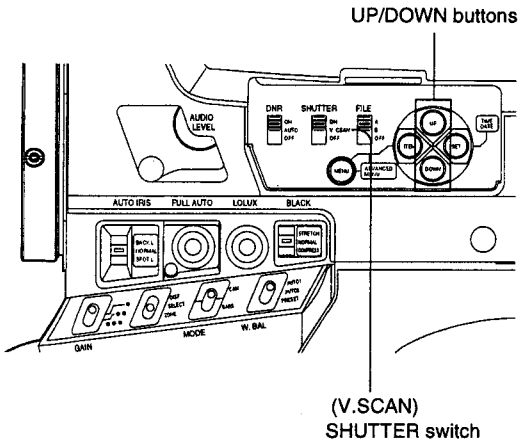
CAUTION :

Perform the necessary connections by setting the camera power switch to OFF. Connection with the power switch ON may lead to a malfunction of the camera.
In this case, set the power switch to OFF, and after waiting for more than 5 seconds, set it back to ON.

6-3 SHOOTING THE SCREEN IMAGE ON THE COMPUTER MONITOR



Video monitor



• Outline

- The following operation allows the alignment of the shutter speed of the camera with the variable scanning rate of the computer monitor or display.
- When a computer monitor or display is shot with the camera, a bright horizontal line indicating excessive exposure is displayed in cases when the scanning rate of the monitor is faster than the shutter speed of the camera or a dark horizontal line indicating insufficient exposure is displayed in cases when the monitor's scanning rate is slower than the camera's shutter speed.
- The scanning frequency of the monitor is variable due to various reasons during the computer operation. Adjust the scanning rate so as to obtain a stable image while observing the image on the viewfinder screen.

■ Variable scan [V.SCAN]

• Basic operation

Set the SHUTTER switch to the center position (V.SCAN) then adjust the shutter speed with the UP or DOWN button. (The speed is displayed on the viewfinder screen.)

• Compatible frequencies

The variable scan function is compatible with the scanning frequencies in the following range.
60.5 to 1966.7 Hz (NTSC)
50.4 to 1953.1 Hz (PAL)

CAUTION :

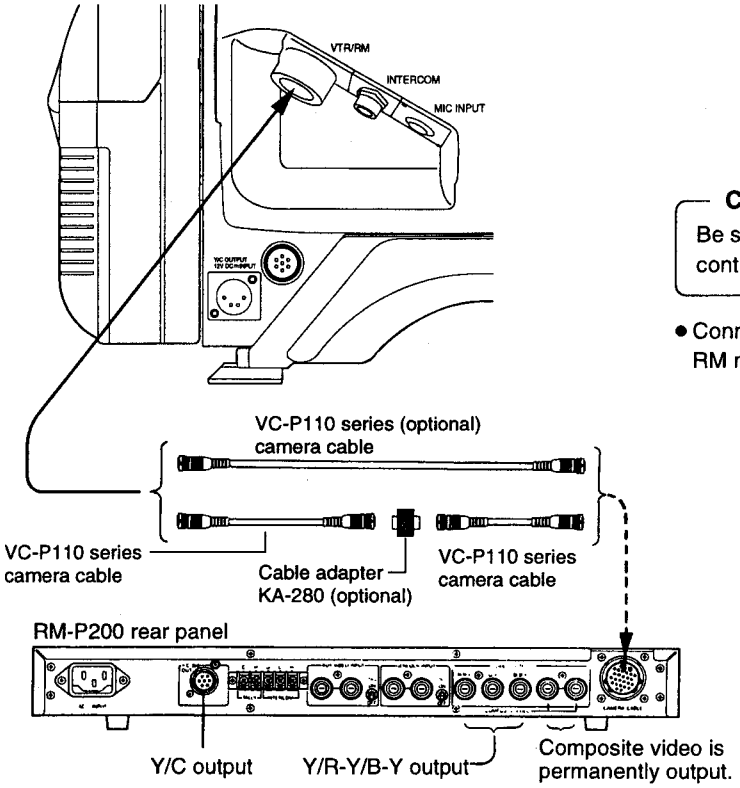
- Compatibility with a computer monitor with a low scanning rate, cannot be obtained.

- If the SHUTTER switch has already been set to ON or V.SCAN, press the UP or DOWN button to display the shutter speed, then press the same button again to change the displayed speed.

6-4 CONNECTION WITH THE REMOTE CONTROL UNIT (RM-P200/-P300)

The camera can be remote-controlled by connecting it to the RM-P200/-P300 remote control unit (optional). Be sure to read the instruction manual of your remote control unit before proceeding with the connection.

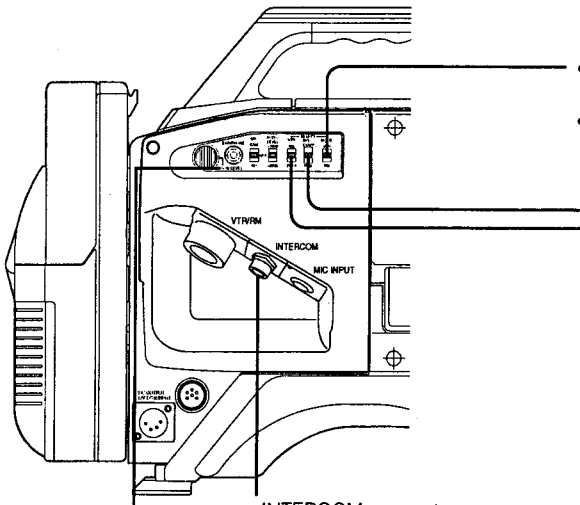
CONNECTION METHOD



CAUTION :

Be sure to set the power switches of the camera and remote control before proceeding with the connection.

- Connect an optional VC-P110 series camera cable to the VTR/RM multi- input connector of the camera adapter.



•VTR / Remote control switch
Set to RM.

•The signals output from the R/R-Y, G/Y, B/B-Y and Y/C signal output connectors on the rear panel of the RM-P200/300 can be selected according to the SIG and VTR switches.

Signal	VTR	SIG
Y/C	–	Y/C
MII Y/R-Y/B-Y	MII	COMP
Betacam Y/R-Y/B-Y	BETA	COMP
R/G/B	–	RGB

Refer to the section 1.12 "CONNECTION WITH REMOTE CONTROL UNIT, RM-P200/RM-P300" on page 1-10.

6. SYSTEM UPGRADING

6-4 CONNECTION WITH THE REMOTE CONTROL UNIT (RM-P200/-P300) (Cont'd)

RM-P200

The RM-P200 is a versatile camera control unit that combines many features needed for studio or remote Stand-Alone operation.
Control and power is supplied for the camera to a distance of 100 Meters (325 feet) using the optional VC-P110 series camera cables. Cable Signal Level compensation is finely adjustable. Intercom connection and Tally trigger/indication are provided.

- **Camera control includes:**

  Shutter speed
  Camera/Bars output
  Gain
  Automatic White Balance
  Manual White Balance with Red Gain and Blue Gain
  Black Balance/Auto Set (Auto white only)
  Master Black level
  Iris, Manual and Auto

Genlock functions, Loop through Reference video connection as well as SC phase and H phase adjustment are all possible from the remote unit with controls located on the front panel. Two composite video outputs are provided, as well as a choice of either RGB, Component or Y/C output. These basic functions are controlled completely by the serial data connection to and from the camera. Other advanced functions such as LOLUX or Full Auto Shooting, Full Time Auto White, Variable Scan, shutter speed in 1/100 (NTSC),1/120 (PAL),1/2000 and others are not controlled.

RM-P300

CAUTION :

When the RM-P300 is connected, the camera or the RM-P300 should be adjusted internally depend on it's configuration. In this case, please consult JVC authorized service center.

In addition to all the basic functions of the RM-P200, the RM-P300 adds comprehensive front panel warnings.

- **Additional advanced functions:**

  Manual Black balance (Paint)
  (with Red Gain and Blue Gain)
  Black paint
  Contour control
  Function Lock
  Call tally function
  4 wire intercom

IN CASE OF DIFFICULTY

- **Troubles related to video image**

  Abnormal color phase:
  - Is the SC phase adjusted properly?

  No locking with the reference signal:
  - Is the MODE switch of the KA-27 camera adapter set to RM?
  - Is the reference signal input through the GENLOCK INPUT connector?
  - Is a VCR playback signal not used as the reference signal?
  - Is the reference signal a proper signal such as composite video or black burst?
    * Genlocking does not occur with a computer output signal.

- **Troubles related to control**

  Tally lamp does not light:
  - Is power supplied to the tally input connector?
  - Is the internal trigger switch set properly?

  Intercom is not possible:
  - Does the headset in use have an optimum impedance (between 200 and 600 ohms)?
  - Is the MODE switch of the KA-27 camera adapter set to RM?

  Auto setup indicator does not light:
  - Are all of the cables connected properly?

CAUTION :

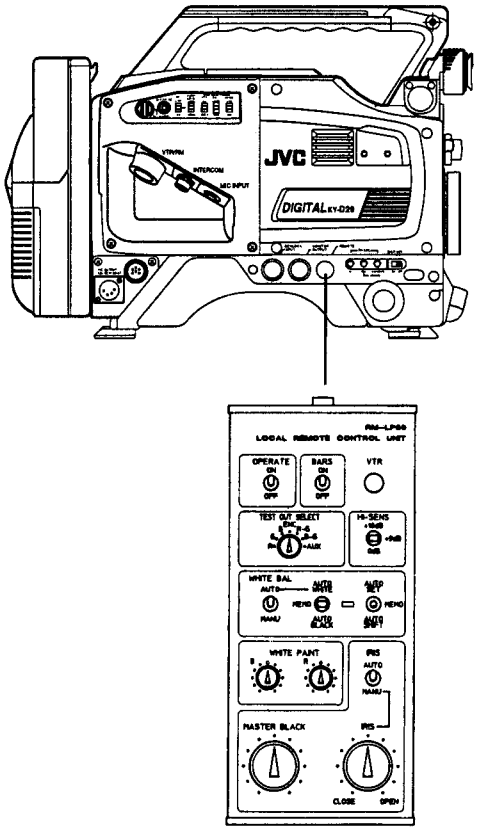
While the gain, shutter or white balance adjustment function is operated from the remote control unit, the FAS function cannot be used even when it is activated on the camera.

CAUTION :

The functions which are available on the camera but not on the remote control unit cannot be controlled. However, setting the gain control to 24 dB on the RM-P300 puts the camera in the LoLux mode (+33 dB).

Refer to the section 1.11 "CONNECTION WITH RM-P270, TRIAXIAL UNIT" on page 1-9.

6-5 CONNECTION WITH THE LOCAL REMOTE CONTROL UNIT (RM-LP80/-LP35/-LP37)



RM-LP80

■Connection method

Connect the cable from the RM-LP80/-LP35/-LP37 to the local remote control connector of the camera.

■Operation procedure

The lens iris mode is automatically returned to the auto mode.

1. Set the Operate switch of the RM-LP80/-LP35/-LP37 to ON to enable the local remote control operation.

■Functions which cannot be remote controlled

The following functions are found on the remote control unit but not provided on the camera. Therefore, any operation related to these functions performed on the local remote control unit becomes invalid.

RM-LP80 : TEST OUT SELECT switch
AUTO SHIFT function
Knee point function
Auto black function
Auto set function (except Auto white)

RM-LP35 : Knee point, Auto black function

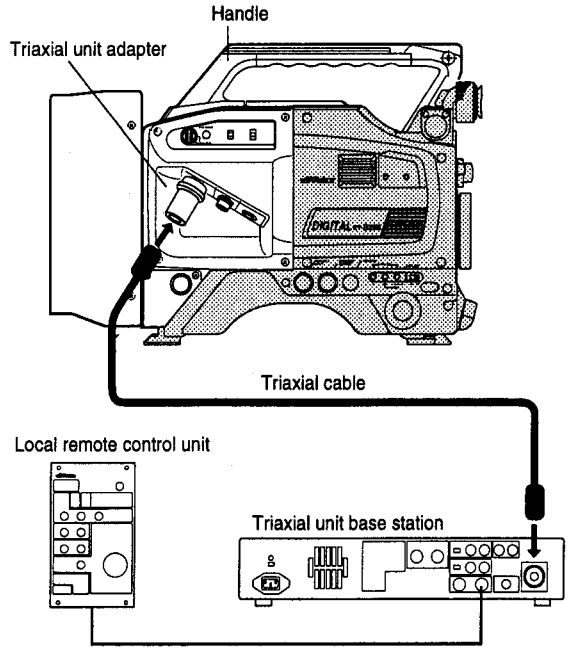
RM-LP37 : Auto black function

Notes :

- When the same switch function is provided on both the local remote control unit and camera, the function on the remote control unit is given priority and it cannot be operated from the camera.
- The gain value follows the value set on the local remote control regardless of the setting made on the camera.
- While the local remote control unit is active, the LoLux and FAS functions of the camera cannot be used.

For details, read the instruction manual of your local remote control unit.

6-6 CONNECTION WITH THE TRIAXIAL UNIT (RM-P270)



The use of RM-P270 will allow the 14.5mm-diameter cable to be extended up to 1.5 kilometers.

■ Connection

1. Attach the adapter and the handle to the camera.
2. Connect the adapter and the base station via a triaxial cable (separately available).
3. Attach the local remote control unit (RM-LP37, RM-LP35) if necessary.

CAUTION :

When any of the functions unavailable from the camera, such as AUTO BLACK, are operated from the local remote control unit, other operations may be disabled. For models whose numbers in the last four columns of the RM-P270 serial numbers are smaller than 0087, upgrading of the software is provided on charge. Contact the local JVC authorized service center.

CAUTION :

For more information on the connection, operation, and restrictions on the operation, refer to the operation manual for the attachments.

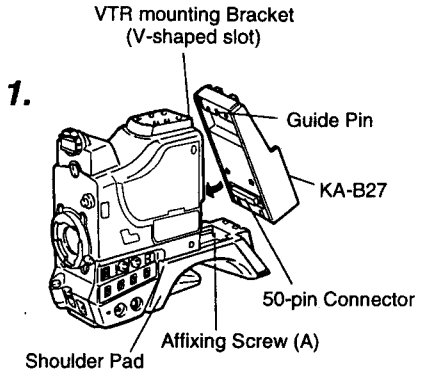
6-7 CONNECTION WITH OTHER ACCESSORIES

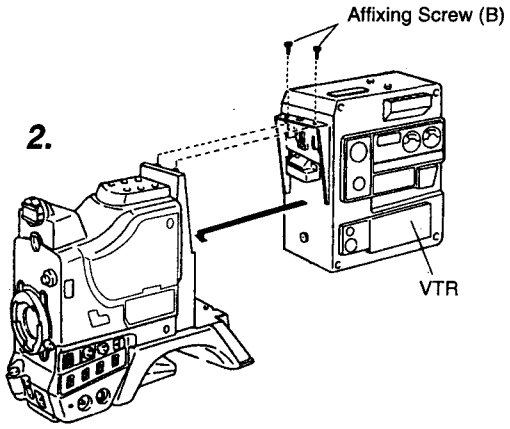
■ **Connection with the BVV-5 Betacam SP VCR**

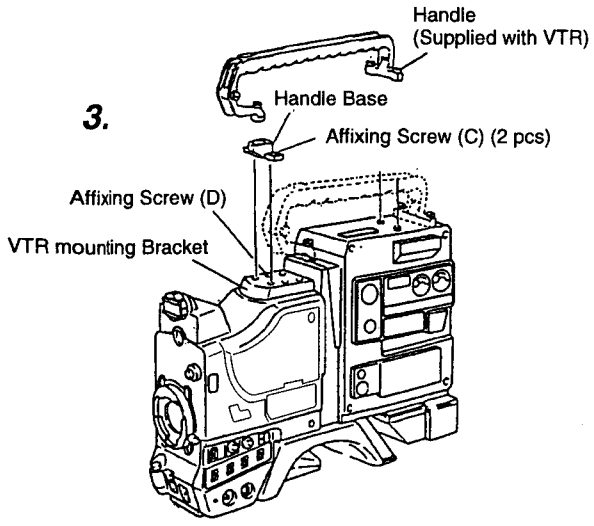
The KA-B27 VCR adapter is required for connecting the BVV-5 to the camera.

• **Connection of the KA-B27**

Use the handle supplied with the BVV-5. It is not necessary to remove the VCR mounting bracket to allow connection.





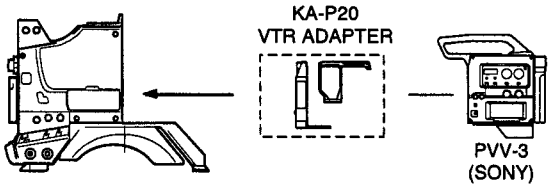


1. Align the guide pin of the KA-B27 with the V-shaped slot on the rear of the camera section. Insert the guide pin in the slot while pressing the KA-B27's 50-pin connector to the corresponding connector on the rear of the camera section to dock them with each other.
Tighten an affixing screw (A) under the shoulder pad as shown below.

2. If the VCR is equipped with a handle, remove the handle before attaching the adapter.
Slide the VCR onto the rear of the adapter to dock them with each other, and secure them with two affixing screw (B) provided with the VCR as shown below.

3. Attach the provided handle base to the top of the camera with two affixing screws (C).
Fit the camcorder with the handle that was removed from the VCR in the above step 2 as shown below.
To fit the VCR mounting bracket to the camera again, push it in the direction of the front side while fixing it with two affixing screws (D).

6-6 CONNECTION WITH OTHER ACCESSORIES (Cont'd)



■Connection with a professional Betacam VCR

(This requires the use of the optional KA-P20 VCR adapter.)
The KA-P20 VCR adapter should be used to connect the camera with a professional Betacam VCR. ThisVCR adapter contains a handle as its part.

For information on the settings of the switch, see the KA-P20 Operation Manual.

■Installation with the Chest rest KA-111

See the KA-111 Instruction Manual.

7. OTHERS

7-1 IN CASE OF DIFFICULTY

■ Errors related to the white balance, auto setup and black balance functions

■ Error messages displayed on the viewfinder screen

AUTO WHITE 1, 2 OBJECT ERROR :

- Check if the white section of the object used in the white balance adjustment during shooting is white enough.
- Check if the selected filter matches the lighting condition.

AUTO WHITE 1,2 LOW LIGHT ERROR :

- Check the iris adjustment and if the lighting should be increased.

AUTO WHITE 1,2 OVER LIGHT ERROR :

- Check the iris adjustment and if the lighting is optimum.

■ Other :

The Full-time Auto White balance function cannot adjust the white balance.

- The white balance cannot be obtained if the screen image contains only a single color in the FAW mode.

■ VCR error

• Error message displayed on the viewfinder screen

VCR OP MISS? :

- This message is output when you use a JVC S-VHS VCR in the camcorder type configuration and press the trigger button while the VCR is not in the record-pause mode.
  Press the record and play buttons of the VCR to enter the record-pause mode.
- The message is output when the trigger (start) button of the camera/VCR is pressed while the stop button of the VCR has been pressed.
- Also check if the connections are correct.

■ Other troubles related to the VCR

Recording is not possible :

- Check if the erasure protection tab of the videocassette is broken.
- Check if the Operate switch of the VCR is set to the power-save mode. In this case, when the VCR is turned ON, the record-pause mode is released and it automatically enters the stop mode.
  As it is not possible to restart the VCR while the operate switch of the camera is set to ON/ST-BY, put the VCR in the record-pause mode.
- If the VCR will not start, also check the lens trigger mode setting.

Power supply troubles :

- When the cassette is not ejected shortly after the power is turned on, the current capacity of the power supply may be insufficient.
- When the power is turned off in less than 1 second after the cassette holder opens, the cassette holder door may not be able to close tightly.

Poor VCR image :

- The image in the still or search mode may fluctuate up and down, be interfered with by noise or turn black and white. These phenomena are not malfunctions.
- The VCR may not be able to record or play tapes under severe vibrations.
- The audio cannot be reproduced in the search mode.

Accumulated recording time/remaining tape time:

- The displayed time is approximate information. Certain errors may be produced depending on the time the VCR enters the record mode.

■ Dark or dim image on the viewfinder screen

- Adjust the CONT and BRIGHT controls of the viewfinder.
- Ensure that the color temperature conversion filter control knob is set to a position other than "5600K+ND".
- Ensure that the iris is not closed.
- Ensure that the shutter speed is not set too fast.
- Check the connection of the viewfinder cable.

7-2 SPECIFICATIONS

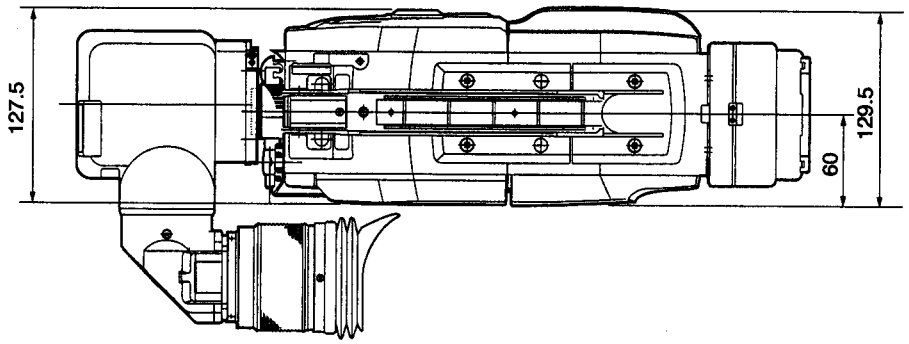
• Design and specifications are subject to change without notice.

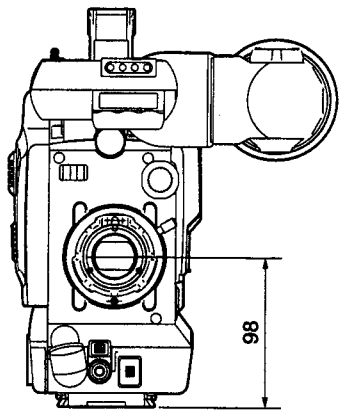
Image pickup system : R, G, B 3-CCD
Image pickup devices : Inter-line CCDs
Image size : 2/3 inch
Effective pixels : 768 (H) × 493 (V) [for NTSC]
: 754 (H) × 581 (V) [for PAL]
Color separation optics : 3-block prism optical system, F/1.4
Lens mount : 2/3 inch, bayonet
Synchronization : Internal sync (built-in SSG),
External sync (VBS or BB)
Color format : NTSC (broadband R-Y/B-Y encoder)
: PAL (broadband R-Y/B-Y encoder)
Sensitivity : F/11, 2000 lux
Minimum object illumination : 0.35 lx (F/1.4, Super LoLux)
S/N : 62 dB (typical) 65 dB (when DNR is set to ON) [for NTSC]
: 60 dB (typical) 63 dB (when DNR is set to ON) [for PAL]
Horizontal resolution : 850 lines (center), Y signal
Gain boost circuit : Basic modes: 0 dB/+9 dB/+18 dB (–3, 6, 12 dB, ALC can be selected)
Registration : 0.05% (entire screen area, lens characteristics ignored)
Detail correction : Two-way in both H and V directions
Auto knee function : Built in
White balance : Preset (3200K), Auto white (AW1, AW2), Full-time auto white
Color bar signal : SMPTE type color bars [for NTSC]
: EBU FULL FIELD [for PAL]
Electronic shutter : 1/100 (NTSC), 1/120 (PAL), 1/250. 1/500, 1/1000, 1/2000, EEI (Electronic Iris)
Variable scan : 60.5 Hz to 1966.7 Hz [for NTSC]
: 50.4 Hz to 1953.1 Hz [for PAL]
Color temperature conversion filter : ① 3200K, ② 5600K, ③ 5600K+1/16ND, ④ 3200K+effect (cross) filter

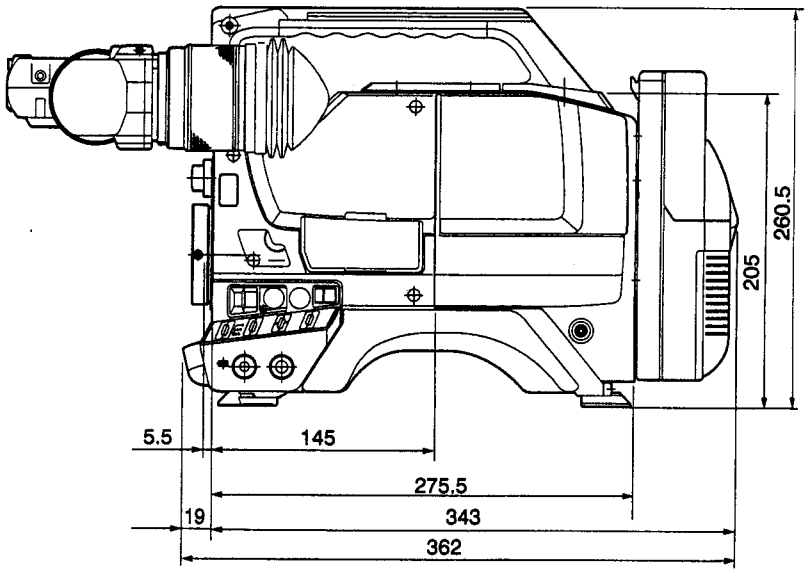
Video outputs (KA-27) : ① Composite video 1 V(p-p), 75-ohm
: ② Y/C 358
Y : 1 V(p-p), 75-ohm (with SYNC)
C : 0.286 V(p-p), 75-ohm (burst) [for NTSC]
: 0.3 V(p-p), 75-ohm (burst) [for PAL]
③ Component
R : 0.7 V(p-p), 75-ohm
G : 0.7 V(p-p), 75-ohm
B : 0.7 V(p-p), 75-ohm
Y : 1 V(p-p), 75-ohm
R-Y : 0.486 or 0.7 V(p-p), 75-ohm [for NTSC]
: 0.525 V(p-p), 75-ohm [for PAL]
B-Y : 0.486 or 0.7 V(p-p), 75-ohm [for NTSC]
: 0.525 V(p-p), 75-ohm [for PAL]
Audio output : –20 dBm/-60 dBm switchable
Audio monitoring : Fold-back from VCR (8-ohm)
Fold-back video input : 1 V(p-p), 75-ohm
Genlock signal input : Composite video 1 V(p-p), 75-ohm or ; black burst 0.43 V(p-p), 75-ohm [for NTSC]
0.45 V(p-p), 75-ohm [for PAL]
Microphone inputs : –60 dBm balanced (camera, 3-pin XLR), –60 dBm balanced (KA-27, 3-pin XLR)
Power supply : 12 V DC (10.5 to 15 V)
Current consumption (standard operation) : 16 W (camera head only, w/o camera adapter, viewfinder and lens)
19 W (with camera, camera adapter, viewfinder and lens)
Operating temperatures : –5 to +45°C
Weight : 4.3 kg (including VF-P116 and KA-27 but w/o lens)
Accessories : Microphone holder 1
Tripod base 1
Provided documents : Instructions 1
Warranty card 1

7. GENERAL

■ Dimensions [Unit : mm]







The outer dimensions as shown in the diagram are for the camera head attached with the camera adapter (KA-27) and viewfinder (VF-P116).

Design and specifications are subject to change without notice.

KY-D29 COLOR VIDEO CAMERA

JVC

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